VSB —TECHNICAL UNIVERSITY OF OSTRAVA
FACULTY OF ECONOMICS

DEPARTMENT OF FINANCE

Odhad dopadů Brexitu na veřejné finance Spojeného království

Estimated Effects of Brexit on UK Fiscal Performance

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Ostrava 2018

VŠB - Technical University of Ostrava
Faculty of Economics
Department of Finance

Diploma Thesis Assignment

Student: **Bc. Wen Zhang**

Study Programme: N6202 Economic Policy and Administration

Study Branch: 6202T010 Finance

Title: Estimated Effects of Brexit on UK Fiscal Performance
Odhad dopadů Brexitu na veřejné finance Spojeného království

The thesis language: English

Description:

1. Introduction
2. Brexit and its Causes
3. Possible Scenarios for Post-Brexit UK Economy
4. Economic Impacts: Quantitative Estimates and Qualitative Assessments
5. Conclusion

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References:

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Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on the web sites of the faculty.

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Date of issue: 24.11.2017
Date of submission: 27.04.2018

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Ostrava dated 27.04.2018

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1. Introduction

One of black swan events happened on 2016 is that the United King voted to exit the European Union. A total of 33.5 million British turned out to polling stations on 23 June 2016. Voter turnout exceeded 72%.The end result was unexpected and relatively tight: Brexit won with 52% of the vote.

According to the Article 50 of the Lisbon Treaty, which is referred to as the "simplified EU Constitutional Treaty", after the UK has notified the EU of its official exit from the European Union, it will be given up to two years and EU member states will conduct a various negotiations. As a result, Britain will remain in the EU for the foreseeable future. While here are a lot of negotiations to discuss the future path.

If the UK were to decide to leave the European Union, many aspects of political and economic life would be affected. One of those would be the UK's public finances. This would happen in a direct way. UK currently a net contributor to the EU budget and, in that respect, leaving the EU would strengthen UK public finances. The amount they currently contribute, and could potentially save, is arithmetically quite straightforward to calculate. But public finances depend crucially on the strength of the overall economy, and if the economy were to be stronger or weaker outside the EU than within it then this effect would be likely to overwhelm the direct effect.

In this paper, I consider both the possible direct and indirect consequences of a Brexit for the UK's public finances and the fiscal performance. My objective of this thesis is to provide the analysis of Brexit consequences with the main focus on evaluating the effects on UK public finance.

In Chapter 2, I look at the direct effects for the different aspects like economic, movement of people, investment from outside and the budget contribution to EU. Those fours factors are not only mainly factors for UK's future development but also will

influence the EU even whole world economic reaction.

About Chapter 3, I looks at the now considerable literature and results from modelling the possible economic consequences of leaving the EU. So I list some choices also the possible scenarios which are post- Brexit main originations play an important role in international business and UK's probably decisions. Were they to leave the EU and not join the European Economic Area (EEA) or similar arrangement, these effects are fairly clear. But there remains the possibility that in a post-Brexit world, the UK would sign up to all or some of the responsibilities that would go with joining the EEA or any other optional organizations as I mentioned in chapter 3, so I also look at what effects that might have and make the comparison about the different unions.

It sets out the scale of trade with the EU and other partners and the role of tariffs, and other non-tariff barriers and looks at the different options in terms of trade agreements following a leave vote. It then looks at both the short- and long-term possible economic effects of leaving the EU, drawing on the various studies and explaining the possible roles of uncertainty, trade, foreign direct investment, regulation and immigration.

Chapter 4 goes on to say the negotiations between the UK and the EU are now well under way. However, the UK and EU remain miles apart on a number of issues and the UK or EU relationship being based on WTO rules, even for an interim period, looks like an increasingly realistic prospect. Meanwhile I use the analysis in the one previous chapters to look at possible public finance impacts in the short and long runs. To see how much impact they make and how many years the impact they will cause. Because there are no quantified economic scenarios from the Office for Budget Responsibility (OBR) or the Bank of England, I use some of the most credible independent economic forecasts to look at these possible public finance outcomes from like PwC and Morgan Stanley etc. The market's focus on Brexit is mainly in the short term; but from a long-term perspective, the European Union, the European relations, the world economy, global financial markets and the future development prospect of EU's economic and financial have brought the influence of different level because it a world wise decision .

Chapter 5 is the conclusion for this Brexit decision and my personal opinion that I figure out for the majority of businesses in Britain the possibility the UK might leave the European Union –Brexit –is a major source of concern. Both the break with the EU and the uncertainty associated with it would be bad for business and damaging to the UK economy. A great deal has now been written on the economic consequences for the UK of Brexit. Some of this is impartial; much of it is partisan. Very little has been written on the consequences for the rest of the EU. At the heart of this paper are the analysis and the different channels of impact. For each I consider in turn the impact on the UK and on the rest of the EU. I also mentioned a little influence in which different member states are exposed through these channels.

I conclude that while the biggest impact of Brexit would be on the UK about fascial performance, there can be little doubt that there will also be a significant impact on the rest of the EU.

Finally, by way of introduction, it is important to stress that I am here looking at more only one aspect of the Brexit debate that is the economics public finances and fiscal measures matter, but they are by no means the only things that matter. I hope that what I have here will even help a little bit inform that particular element of the debate for others to weigh up alongside all the other issues that will count in coming to a decision over UK future membership of the EU.

2. Brexit and its Causes

If the UK were to leave the EU, the direct impact on lots of aspects of economic and political. For example, this would give rise to a reduction in UK public spending, although replacing at least some of the spending that is currently undertaken by the EU in the UK would presumably offset some of this fall. Furthermore, some form of contribution to the EU budget might be required if the UK wanted continued access to the EU's single market, particularly in services, which would further offset budgetary savings. This chapter looks at the potential and general size of this direct impact on the good and service, foreign investment, movement of people and budget, sets it in the context of overall UK government spending and borrowing. (The deep impact on the economic especial public finances of the UK leaving the EU – that is, taking into account any change in national income – both in the short and long runs, is considered in Chapter 4.)

2.1. Trade in goods and services in EU.

As we all know, the Brexit behavior must influence the changes of all factors like trades about goods and services.

First, Brexit happened, the UK economy may fall into recession. Lagarde, chairman of the International Monetary Fund, said on May 13, 2016 that Brexit would be a "terrible" option to the British economy. The organization wrote in a June 17th report that if Britain chooses to leave the EU, the impact on the UK economic outlook will be negative and huge. Even it is a post report, and it still expressed some information about the world's voice. In extreme cases, the UK's economic growth in 2019 may slow 1.5% - 5.5% relative to that of the EU.

Meanwhile, Brexit would have a negative impact on trade between Britain and Europe. The EU is Britain's largest and most important export destination, accounting for 46.9% of the total UK exports, with the United States and China accounting for only 11.9% and 5.1%. At the same time, the EU is also the UK's largest importer of the

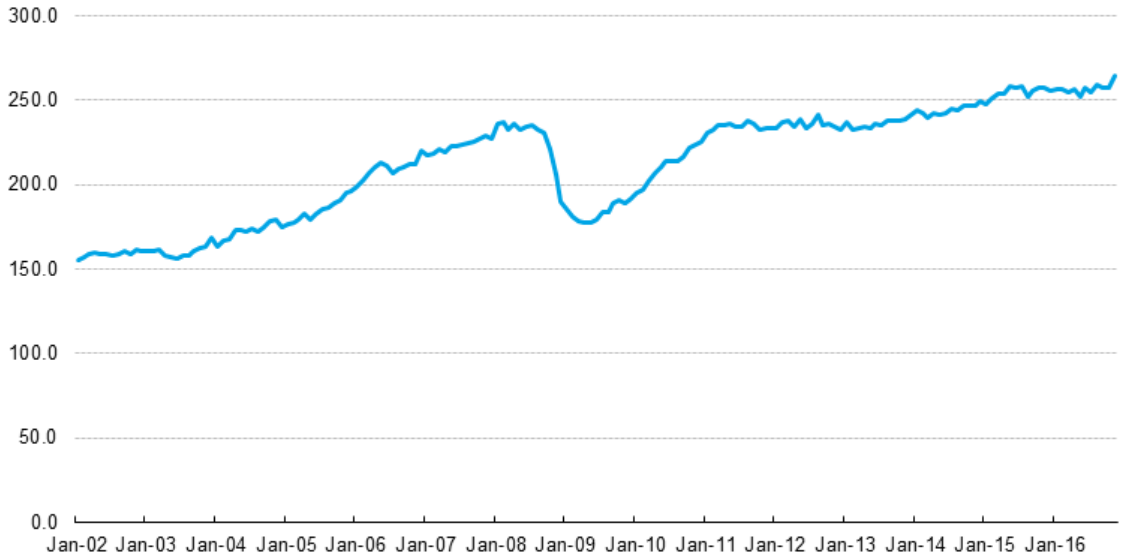
economy, accounting for 52.3% of the total UK imports. The Brexit and the many agreements, rules and legal basis on which the British economy operates will be broken, the country's economy must undergo violent shocks. For example, the United Kingdom will need to secure access to a single European market, reopen EU trade agreement negotiations with 60 other countries and regions, and rewrite thousands of EU regulations in English law. Moody's rating agency believed that the departure from the EU will have a negative impact on the British economy in the short to medium term. The medium-term economic impact depends mainly on the new trade agreement Britain can negotiate with the EU. In addition, Britain's post-Brexit trade policy will be less pronounced. The EU is currently conducting TTIP talks with the United States and Japan, and it is hard for the United Kingdom to participate directly.

My article takes a close look at recent trends, focusing on total intra-EU trade in goods and the most traded products. It presents statistics for the EU-28 aggregate and for individual Member States for the period covering 2002 to 2013, although the composition of the actual EU has changed over this period.

Statistics on international trade in goods between Member States of the European Union especially the size and evolution of imports and exports, enable the EU and national authorities to evaluate the growth of the Single Market and the integration of EU economies. These statistics also provide EU businesses with essential information for their sales and marketing policies.

Figure 1 shows the seasonally adjusted value of monthly total exports of goods for EU-28 Member States to other Member States. In 2002 (1,908 billion EUR) and 2003 (1,927 billion EUR) the level of exports of goods was fairly stable, followed by a period of rapid increase between 2004 and the third quarter of 2008. From the fourth quarter of 2008 to the end of the second quarter of 2009 there was a sharp decrease in the value of exports of goods. Following this decline the value of exports of goods began to increase again until the beginning of 2011, when it had returned to the level seen before the decrease at the end of 2008. From 2011 onwards the level has been relatively stable and

the annual value for 2015 is over EUR 3,063 billion.



（*data from January 2017. Most recent data: Further Eurostat information, Main tables and Database.*）

Figure 1

Since the introduction of the Intrastat data collection system for intra-EU trade in goods on 1 January 1993, the value of intra-EU exports of goods has been consistently higher than that of intra-EU imports of goods. In theory, as intra-EU exports of goods are declared FOB-type value and intra-EU imports of goods CIF-type value, the value of intra-EU imports of goods should be slightly higher than that of intra-EU exports of goods. The analysis presented in this article considers intra-EU exports of goods only, as it is the more reliable measure of total intra-EU trade in goods since, at aggregated levels, total intra-EU exports of goods has better coverage than total intra-EU imports of goods.

Here is a wide variation in the value of export trade in goods by Member State with partners within the EU, as can be seen in figure 2.

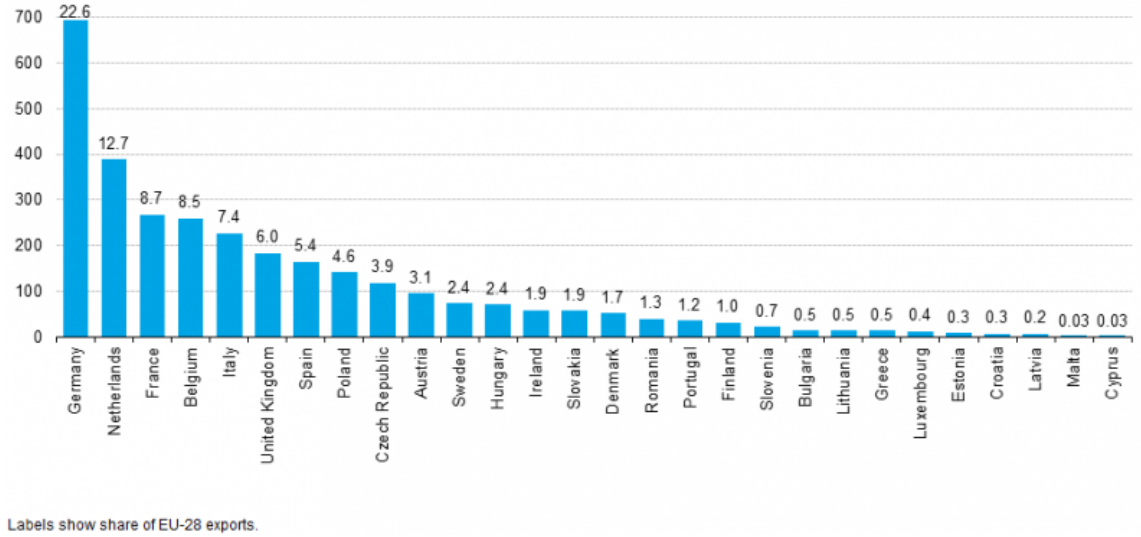


Figure 2

In 2015 the value of export trade in goods within the EU ranged from over EUR 6 billion for UK to other Member States in the EU. There were nine Member States (Belgium, Czech Republic, France, Germany, Italy, the Netherlands, Poland, Spain and the United Kingdom) whose exports of goods to partners in the EU were over EUR 100 billion in 2015, accounting for almost 80 % of the total value of intra-EU exports of goods.

	2003	2009	2015	Annual average growth rate (%)
Belgium	51	65	101	6
Bulgaria	2	4	8	11
Czech Republic	5	12	14	13
Denmark	17	22	33	6
Germany	231	300	505	7
Estonia	1	2	3	12
Ireland	31	32	52	4
Greece	4	7	12	9

Spain	34	49	89	8
France	115	130	188	4
Croatia	2	3	4	7
Italy	1	2	2	6
Cyprus	6	12	17	14
Latvia	1	1	1	17
Lithuania	2	4	9	12
Lu	1	2	2	6
Hungary	6	12	17	9
Malta	1	1	1	2
Netherlands	51	80	125	8
Austria	20	27	41	6
Poland	8	20	37	13
Portugal	5	8	14	8
Romania	4	7	14	12
Slovenia	3	4	7	9
Slovakia	3	6	10	12
Finland	19	20	22	1
Sweden	37	39	52	3
United Kingdom	110	114	230	6

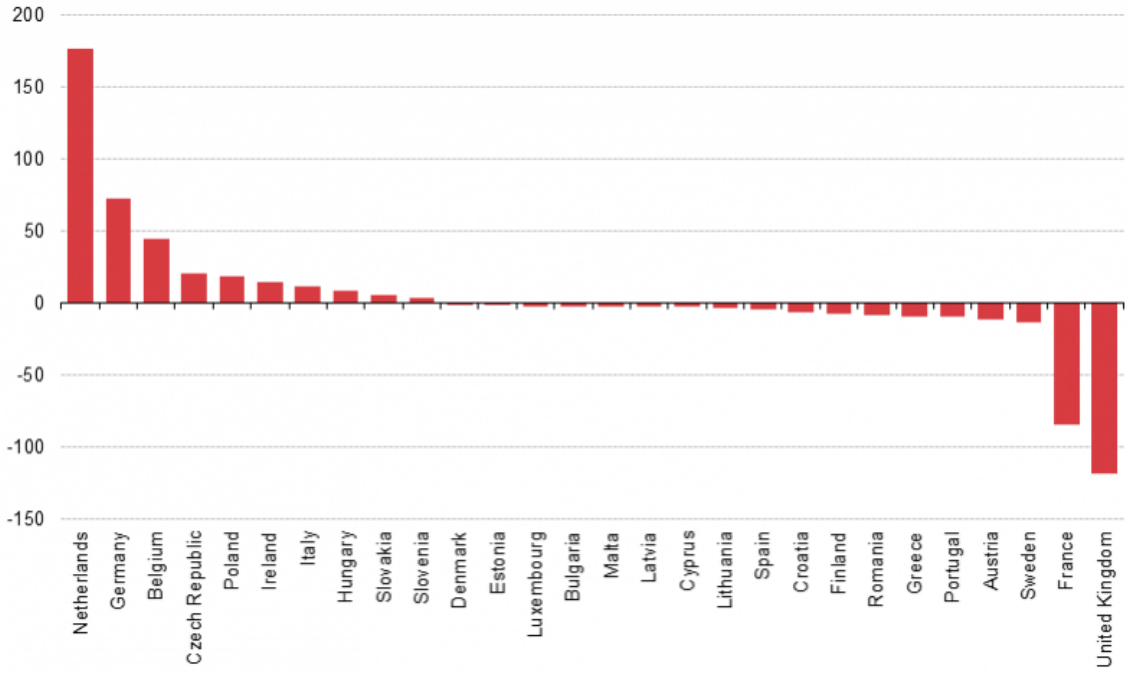
Source: Eurostat

Table 1

Table 1 shows that for 12 Member States the value of exports of goods to partners in the EU-28 has increased more than 100 % between 2003 and 2015 and another five where the growth was between 50 % and 100 %. The UK had a huge increasing in 2015 one year before decided Brexit.

Sometimes it can be difficult to interpret figures in absolute terms for individual member States. In particular their trade in goods balances must be interpreted with caution for the phenomenon of Quasi-transit. So I use the figure 3 to explain the balance

of import and export.



Source: Eurostat DS-018995

Figure 3

Figure 3 shows that, as with the size of the exports flows for trade in goods, there was also a wide variation between Member States in the balance of these two flows. Sixteen Member States have negative trade in goods balances, i.e. they import more goods by value from EU partners than they export to other EU Member States. There were both larger and smaller economies within the EU with negative trade in goods balances in 2015. The largest negative intra-EU trade in goods balances were recorded for the UK (119 billion) and France (84 billion). So now I could suppose the biggest negative trade in goods balance for UK is one of important signal about Brexit.

	2003	2009	2015	Trend
Belgium	21 752	22 312	44 194	
Bulgaria	-1 324	-2 490	-2 132	
Czech Republic	5 141	10 104	20 051	
Denmark	4 140	3 920	-726	
Germany	79 249	73 457	72 452	
Estonia	-413	-1 333	-1 966	
Ireland	21 267	21 433	14 132	
Greece	-16 857	-19 847	-9 026	
Spain	-23 801	-17 109	-4 188	
France	-16 197	-63 130	-84 349	
Croatia	-5 441	-4 995	-6 741	
Italy	-444	-1 912	11 503	
Cyprus	-1 900	-3 470	-2 827	
Latvia	-1 466	-1 574	-2 809	
Lithuania	-917	-165	-3 150	
Luxembourg	-563	389	-2 095	
Hungary	5 117	9 286	8 719	
Malta	-973	-1 588	-2 361	
Netherlands	82 219	120 833	176 343	
Austria	-6 771	-8 912	-11 490	
Poland	-2 965	344	18 447	
Portugal	-10 382	-16 479	-9 894	
Romania	-2 610	-6 845	-8 345	
Slovenia	-1 107	43	3 057	
Slovakia	1 842	4 770	5 907	
Finland	2 673	-3 303	-7 966	
Sweden	-33	-3 595	-13 192	
United Kingdom	-40 059	-44 078	-118 587	

Red points denote trade deficits and blue points trade surplusses

Sources: Eurostat

Table 2

Table 2 shows the trade in goods balance for 2003, 2009 and 2015. Over this period, most Member States have continued to be either net importers of goods (for example France and the United Kingdom) or net exporters of goods (for example Germany and Czech Republic). However the extent of the positive or negative balance has changed for many Member States. For example

UK continues to be a net importer of goods from other Member States, but the negative goods balance has increased from EUR 40 billion to EUR 118 billion. At the same time, Germany continues to be a net exporter of goods but its positive balance has decreased from EUR 79 billion to under EUR 72 billion. The data shows the UK is always the big a net importer of goods from other Member States. The situation may have a huge changes after Brexit finished.

2.2. Foreign direct investment in UK

The UK is considered one of the best countries to start all kinds of business, but that could change due to the unknown effects from Brexit. One of the changes is the possible reduction of foreign investment.

The fact is half of the UK's FDI stock accounting for £1 trillion, comes from the rest of European Union. After Brexit decided, higher trade costs and tariffs would likely decrease investments in the UK.

According to OECD official analysis, leaving the EU would have a negative impact on FDI inflows in the UK and is likely to decrease by 22%. The UK being a part of the single market has attracted many foreign investors as they have not had to face high cost barriers from tariffs and could easily export to other EU countries. Growth in the value of foreign direct investment (FDI) positions held in the UK by overseas investors (FDI liabilities) exceeded that of UK FDI positions held abroad (FDI assets) in 2016, resulting in the UK's net FDI position falling from £50.8 billion in 2015 to £12.5 billion by 2016, the lowest net position since comparable records began in 1997.

While the truth may cause some different situation, according to 2017 World Investment Report of the United Nations Conference on Trade and Development (UNCTAD), the United Kingdom was the second largest recipient of FDI in the world in 2016 after being ranked 12th a year before. This drastic increase was largely due to the acquisition of the British SABMiller PLC by Anheuser-Busch Inbev (Belgium) for USD 101 billion. Consequently, the country received an all-time high FDI influx of USD 253 billion in 2016 (compared to USD 33 billion in 2015). Despite Brexit, the UK economy still has some key strengths: London remains the financial capital of Europe, while Great Britain still has a strong currency, despite its recent devaluation, and is one of the most important European markets. The UK placed seventh of 190 economies in the 2017 Doing Business ranking established by the World Bank.

The largest share of FDI inflow into the UK goes to the financial services industry, and half of the UK's current investment stock of GBP 1 trillion comes from the EU member States. The Brexit vote raises concerns among certain investors about higher trade costs with Europe.

Foreign Direct Investment	2014	2015	2016
FDI Inward Flow *(million USD)*	44,821	33,003	253,826
FDI Stock *(million USD)*	1,628,581	1,408,276	1,196,520
Number of Greenfield Investments* **	1,188	1,332	1,175
FDI Inwards *(in % of GFCF****)*	9.0	6.8	57.9
FDI Stock *(in % of GDP)*	54.2	49.2	45.5

Source: UNCTAD, Latest available data.

Table 3

This may not be the case which the UK leave the EU and the single market agreement. The uncertainty of future trade relations between the UK and the EU can also dampen FDI into the UK.

2.3. Movement of people in UK

It is obvious that the Brexit will impact on employment and labor market due to the policies changes and the more complexed visa procedures and different employment benefits policies and tax laws related.

Ever since the UK voted to leave the EU, the number of migrants looking for jobs outside the UK have spiked up, says Indeed, a leading job site. According to statistics, the

UK's unemployment rate is likely to increase to 6.5% due to recession, which is a loss equivalent to 500,000 jobs.

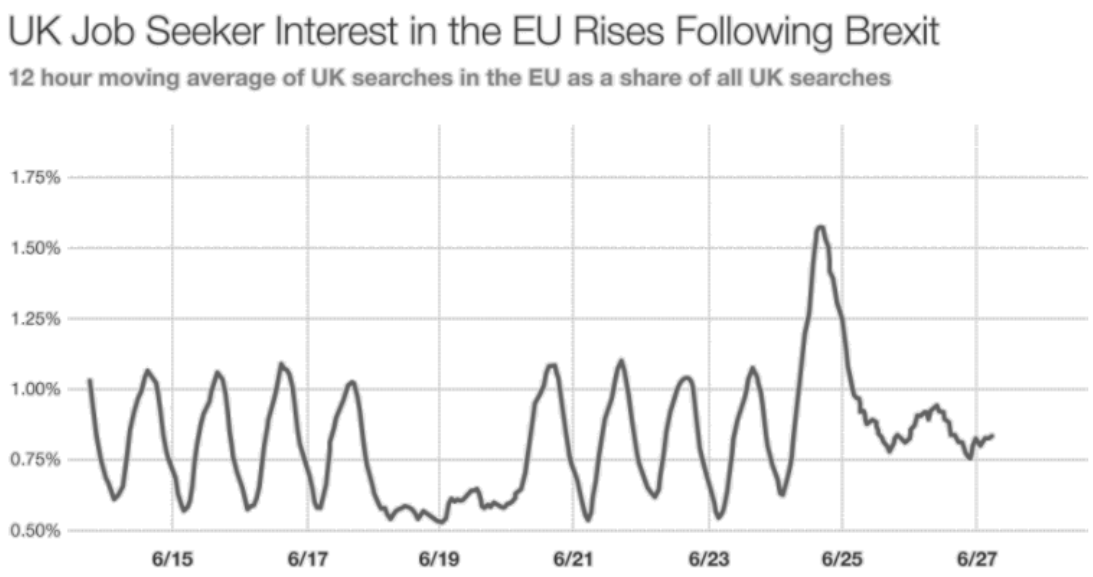
The latest figures say that there are currently 2.1 million European immigrants working in the UK. In industries such as engineering, IT, and construction, where there are shortages of skilled workers in the UK, immigrants from the European Union are filling the void by bringing in vital skills. They are also a major contributor to the unskilled labor market.

EU immigrants also contribute substantially to the healthcare sector in terms of employment. If these EU workers leave the UK, there will be a huge gap between the demand for skilled workers and supply. Thus, the UK's ability to recruit international talent could be at stake.

As the same situation that when the Greek government held a referendum on the terms of its bailout agreement in 2015, Indeed saw a spike in Greek job-seekers searching for work elsewhere in the EU. In the aftermath of the Brexit vote, the same Indeed institution saw a similar pattern.

In fact, Indeed data (figure 4) shows that in the 48 hours following the announcement of the results, the share of UK jobseekers looking for opportunities in European countries was double the average in the days prior to the vote. As for what they were looking for, top searches included roles in marketing, human resources, hospitality and the finance sectors.

With millions of citizens of other EU countries currently based in the UK—many of whom had expressed concern about their future in the run-up to the referendum—this surge in EU-oriented job search could be a reflection of that anxiety. Facing an uncertain future in the UK, it is likely that many EU citizens might be inclined to look at opportunities elsewhere in the EU, even if they are not ready to make such a move yet.



Source: indeed. Data

Figure 4

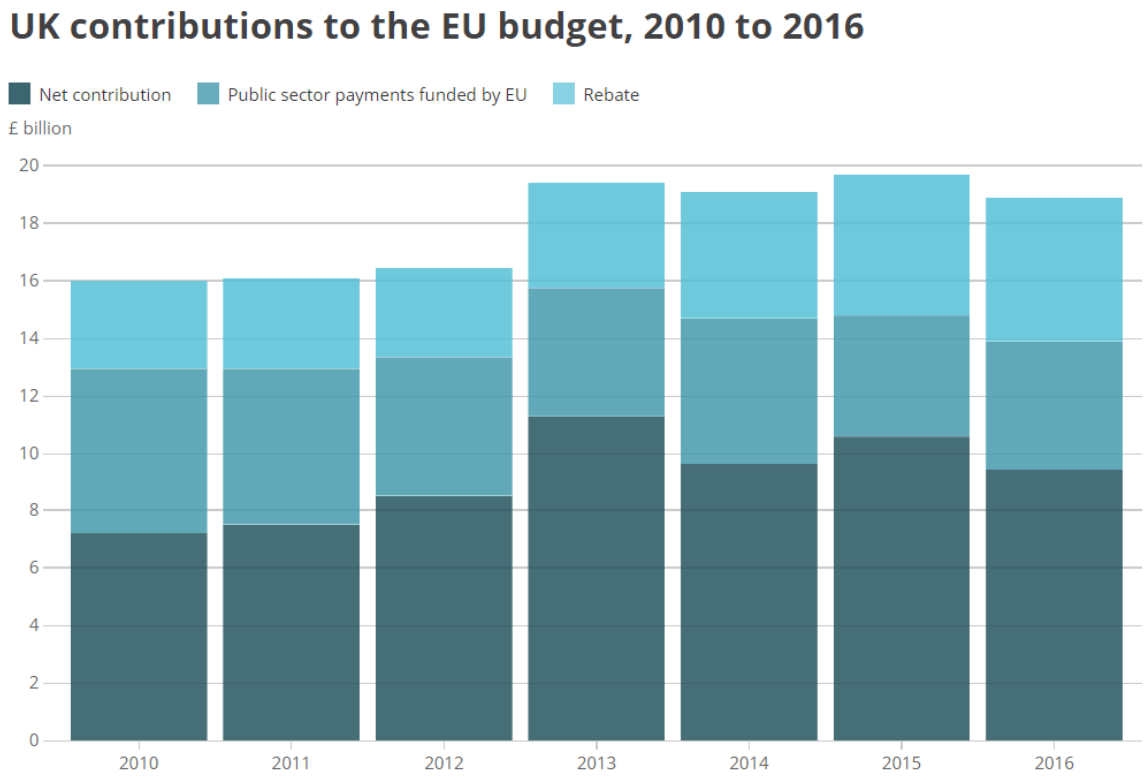
2.4. UK budget contributions to EU

The effect of Brexit are half negative and half positive. The benefits of Brexit to UK businesses is that free from contributing to the common budget. The financial relationship between the UK and the European Union (EU) continues to be a major talking point as the terms of Brexit are negotiated.

The EU budget has three main sources. First one is the "membership dues" paid by member states in proportion to their gross national income, accounting for more than 70% of the total EU budget revenue. Second, VAT; third, tariffs imposed from outside the EU. The budget is mainly used for agriculture, poverty-stricken areas, UNESCO, foreign aid and administrative expenses of EU institutions. To ensure food security in Europe and to ease the polarization within the EU, the EU spends most of its budget on common agricultural policies and solidarity funds that support poor areas. The UK's contribution to the EU budget changes each year as it is dependent on various factors such as: UK gross national income (GNI), the GNI of other EU member states and the value of the UK rebate (which is not a fixed amount, rather it is based on payments and receipts for

the previous year).

Here, using ONS figures I take a look at how the UK contribution has changed over the past seven years. Over all, this seven years the budget contributions are increasing.



Source: Pink Book ONS

Figure 5

According to a 2015 analysis, the UK contributed £13 billion to the European Union budget. The net contribution amounted to around £8.5 billion each year. In 2016, the government spent £814.6 billion on all aspects of public spending, but actually it is not the new value about how much the UK pay to the EU as a current member.

The rebate the UK gets, called the Fontainebleau Abatement, and the net impact of money the UK receives from the EU, for example through the Agricultural Guarantee Fund.

I take a look at the numbers, using latest data from the ONS that account for the UK's official transactions with EU institution, as well as data from the European Commission. In 2016, the UK's gross contribution to the EU amounted to £18.9 billion. However, this amount of money was never actually transferred to the EU.

Also in 2016, the UK received a rebate of £5 billion. This means £13.9 billion was transferred from the UK government to the EU in official payments.

The simple math equation is that:

Total amount £18.9= contribution after rebate £13.9+ rebate £5.0.

But this only accounts for the money that the UK pays to the EU – some of this £13.9 billion is credited back to the UK public sector, of which a proportion is then paid to the private sector.

ONS reports that £4.4 billion came back to the UK public sector and private sector in credits in 2016. This included £359 million that came back through the European Regional Development Fund and £2.4 billion through the Agricultural Guarantee Fund. Given these figures, ONS reports that the UK government's net contribution to the EU – that is the difference between the money it paid to the EU and the money it received – was £9.4 billion in 2016 as compared with the £18.9 billion gross contribution.

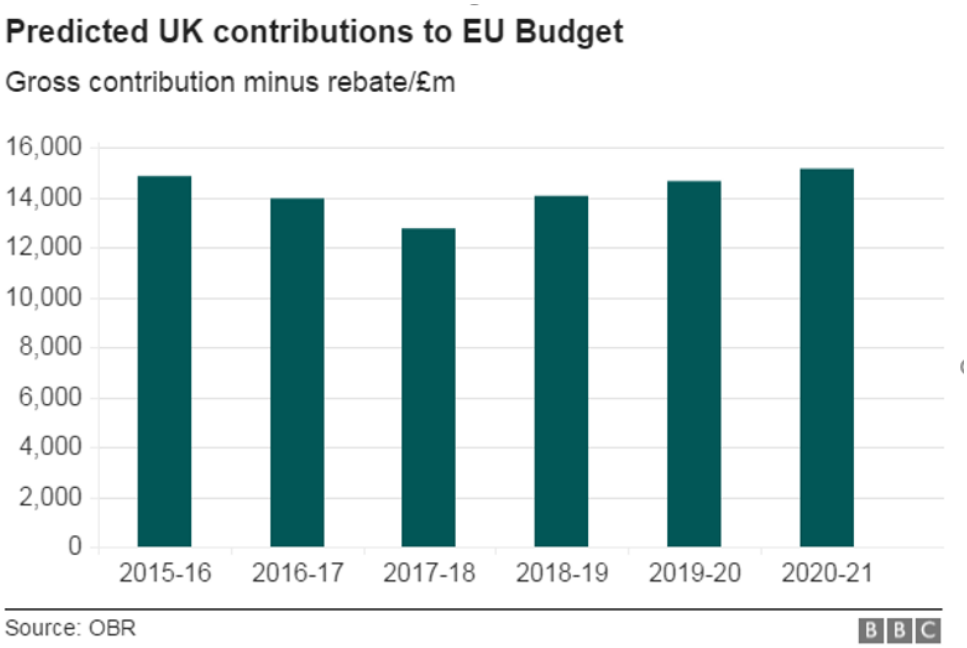


Figure 6

Even the real contribution is kind of rough less than the real one, however, the decision to leave the EU can still save the UK government a lot from having to contribute every year. Different studies show different contribution figures. The chart above shows the predictions of the UK's contribution to the EU in the coming few years from OBR the Office Budget Responsibility.

3. Possible Scenarios for Post-Brexit UK Economy

The impact of Brexit on the UK's economy will depend largely on how it affects the state of the economy, rather than on the some scenarios identified in Chapter 2.

This chapter reviews the post Brexit economy and sets out different area's and organization's rules, looks at the UK's economic relationship with other different agreements and the alternative policy options and also identifies and assesses the main economic issues through some models (Section 3.3). The EU's response section identifies the EU's attitude due to the huge and long economic impact also that feed into the next chapter, which presents the economy changes mainly about public finance implications.

3.1. European Economic Area (EEA)

The European Economic Area (EEA) is the area in which the agreement on the EEA provides for the free movement of persons, goods, services and capital within the European Single Market, including the freedom to choose residence in any country within this area. The EEA was established on 1 January 1994 upon entry into force of the EEA Agreement.

The EEA Agreement specifies that membership is open to member states of either the European Union (EU) or European Free Trade Association (EFTA). EFTA states which are party to the EEA agreement participate in the EU's internal market without being members of the EU. They adopt most EU legislation concerning the single market, however with notable exclusions including laws regarding agriculture and fisheries. The EEA's "decision-shaping" processes enable EEA EFTA member states to influence and contribute to new EEA policy and legislation from an early stage. Third country goods are excluded for these states on rules of origin. After Brexit the UK could seek to continue to be a member the European Economic Area (EEA) as a member of EFTA. Theresa May, the British Prime Minister has said that the UK government would not seek permanent membership in the single market.

So the current situation which is Britain is currently a member of the European Economic Area as a member of the European Union. Questions have been raised as to whether a state that withdraws from the EU automatically withdraws from the EEA or whether such a withdrawal requires notice under Article 127 of the EEA Agreement– and, if the courts so decide, whether such notice given by the UK would require an act of parliament.

According to the economic situation epically the changes of trade for UK and the financial service industry, if Britain still stays in EEA, the financial sector would continue to have the right to carry out business in all EU countries, but there would be no say in the planning of EU rules.

If the UK does not join the EEA, the UK companies that want to operate in the EU will have an "equivalent" test to prove that the system is as strict as the EU.

British companies that want to provide financial services to individual EU retail investors may need to set up a subsidiary to operate the same business in order to pass the test in the EU, which would cost more than running a branch.

A data shows the size of 5.5 trillion pounds ($7.9 trillion) most of the mutual fund industry, is almost entirely in accordance with the EU set negotiable Securities Investment plan (UCITS/Undertakings for Collective Investment in Transferable Securities) the provisions of the operation. Professional lawyers think the fund industry could lose its status as the UCITS, regarded as the global gold standard, causing serious disruption to the business unless the UK joined the EEA. In the point of economic and political, it is advantages outweigh disadvantage. EEA is one of the good choices for UK later in the world as an independent country to join any free union and organization.

3.2. World Trade Organization (WTO)

The World Trade Organization (WTO) is the only global international

organization dealing with the rules of trade between nations. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal of WTO is to help producers of goods and services, exporters, and importers conduct their business. For now, Britain and the EU have formally informed members of the WTO how they plan to split up the EU's tariff quotas and farm subsidies after Brexit. While actually the plan already rejected by the White House.

Under WTO rules, country-specific quotas permit low-tariff imports, such as butter and meat, up to a certain volume, after which higher tariffs can be applied. The joint plan suggests the EU's existing agricultural quota commitments will be "apportioned" based on historical trade flows, and the current ceilings on support for farmers will be maintained.

For future development about UK and considering of the profit of all WTO members, UK could take more responsibility in order to get a smooth transition.

Meanwhile, in the point of fiscal performance, UK need to pay attention to the tariff question when it is not a member of EU. Britain is also a member of the WTO. As one of the sponsors of the tariff agreement, Britain automatically enjoys the benefits of the WTO's no-discrimination commitment.

And once Britain's EU membership ends, British manufacturers will face the same tariffs as the rest of the world. Decades of multilateral negotiations have put the WTO tariffs down. Leaving the EU but also being a member of the WTO, Britain is free to impose tariffs on other countries. After Brexit, it is likely that the UK will keep tariffs as much as the EU. The UK would not be able to set tariffs for imports at a higher level than the EU. The reason for this is that many tariffs in the WTO agreements are "bound" at maximum levels and the vast majority of the EU's applied tariffs are set at the bound tariff rates. Meanwhile British consumers are also likely to continue to enjoy years of low prices. It remains likely that the UK and the EU will be able to agree a zero-tariff

arrangement. However, even if a zero-tariff FTA is agreed, the position will be very different compared to the current position as a member of the single market and customs union. If the UK leaves the customs union, it will no longer be bound by the EU's common external tariff and will be free to set its own MFN tariffs on imports into the UK. While the Department for International Trade has said that the UK will adopt the EU MFN tariffs, the UK could choose to reduce its import tariffs below EU levels, provided it continues to observe the MFN principle that MFN tariff rates differ significantly and higher tariffs are generally applied in relation to products that are produced in the EU.

At the same time, the Institute for Fiscal Studies and others have pointed out that if leaving the EU implies slower growth, the net saving would be wiped out through lower tax revenues and higher benefit spending. So in this case, Britain is not forced to keep a low tariff as fiscal measure. While the UK still needs to set a baseline for the negotiation for any future in fiscal way.

As I mentioned about WTO, the one of UK's choice about agreement with others counties is MFN. In international economic relations and international politics, "most favored nation" (MFN) is a status or level of treatment accorded by one state to another in international trade. The term means the country which is the recipient of this treatment must nominally receive equal trade advantages as the "most favored nation" by the country granting such treatment. (Trade advantages include low tariffs or high import quotas.) In effect, a country that has been accorded MFN status may not be treated less advantageously than any other country with MFN status by the promising country. There is a debate in legal circles whether MFN clauses in bilateral investment treaties include only substantive rules or also procedural protections.

The members of the World Trade Organization (WTO) agree to accord MFN status to trade each other. Exceptions allow for preferential treatment of developing countries, regional free trade areas and customs unions. Together with the principle of national treatment, MFN is one of the cornerstones of WTO trade law. So as a member of WTO, UK's policy orientation could make such as Britain and the European Union

between most-favored-nation (MFN) to establish the WTO rule after fully Brexit. According to the OECD's prediction and calculation, the UK's total exports will still be 8.1% less than they are now, reduced by 5.8%, exports to the EU imports from the European Union to reduce 9.4%, it may be a short term trade reducing. But it is worth to consider about it as a valuable agreement for those MFN benefits.

3.3. Various preferential models

3.3.1. Deep and Comprehensive Free Trade Area (DCFTA)

The Deep and Comprehensive Free Trade Areas (DCFTA) are three free trade areas established between the European Union, and Georgia, Moldova and Ukraine respectively. The DCFTAs are part of each country's EU Association Agreement. They allow Georgia, Moldova and Ukraine access to the European Single Market in selected sectors and grant EU investors in those sectors the same regulatory environment in the associated country as in the EU.

The new Association Agreements that came into force in 2016 with Ukraine, Georgia and Moldova are characterized by their comprehensive political and economic content, and inclusion of DCFTAs, which could lead to a high degree of inclusion in the single market for three of the four freedoms (free movement of goods, service and capital, but not people). The exclusion of free movement of people is because of concern in the EU over the prospect of large flows of immigrants. The EU’s doctrine that all four freedoms are an indivisible package is thus applied to the EU itself and the EEA, but not between the EU and other close neighbors, or FTAs with the rest of the world. These Agreements set out in legally precise terms the entire agenda for defining the relationship with the EU, sector by sector, for virtually all EU competences. The structure of chapters is more or less the same as that used in many of the EU’s other association or partnership agreements with third countries, but the key issue is how far these chapters entail legally binding provisions and compliance with the EU acquis.

The DCFTAs entail a high degree of compliance with EU acquis, and thus are a category apart from the most advanced agreements with non-European countries such as the CETA with Canada. The DCFTA is asymmetric in privileging EU law, whereas the CETA is strictly symmetric with reference to each party's laws. As a result the DCFTA, when fully implemented after transitional arrangements (that would in any case be irrelevant in the UK context), can assure a very high degree of access to the EU single market, close to the EEA case at least for trade in goods, but not for the movement of people or services. The coverage of EU law is very extensive (see Annex 3), but not quite as complete as for the EEA. For some service sectors the DCFTA offers the possibility of 'full internal market treatment', conditional on full compliance with the EU acquis, notably for financial services and telecommunications. The dispute settlement mechanisms lean on WTO practice, with less total reliance on the European Court of Justice than in the EEA case. There is no general contribution to the EU budget by the partner state, except for participation in specific agencies and programmers.

On the contrary, the EU is making substantial grant and loan aid to its DCFTA partners, whereas for the UK the EU is expected to request a general budget contribution as condition for preferential market access. The Association Agreement also includes several other chapters that would be of great importance for the UK, including participation in the Horizon 2020 program for scientific research, the "Erasmus+" program for cooperation in higher education and universities, the European Defense Agency, Europol, etc.

Furthermore, the wide extent to which the EU would want to offer a deal designed for states keen on integration, to a state on course to leave, remains to be seen. Although the existing DCFTAs were fashioned for countries set on integration, rather than exiting the bloc, it remains to be seen whether the agreements emerge as a framework for Britain's own relationship after Brexit. In this preferential agreement, contribution of free trade market is based on UK's aid budget for the DCEFTA to cover a part fee. UK would focus on customer border and the trade defenses as a part of EU or as an independent

country probability like Swiss. Meanwhile, both CETA and the DCFTA provide for tariff-free trade in both industrial and agricultural products, with few and very limited exception. I think the benefit is still working for UK for sure.

3.3.2. Stabilization and Association Agreement (SAA)

These are agreements between the EU and the non-member Balkan states that have 'membership perspectives', including Bosnia, Serbia, Albania, and Macedonia. They provide for a gradual move to tariff-free trade, alongside much attention given to the much needed improvement in the rule of law. Compared to the DCFTA, while the SAA model is also extensive in its listing of topics, the legal precision and level of binding commitment in the internal market area is much less. For example the Serbian SAA seeks to "promote the use of EU technical standards and regulations", which is a weak formulation of uncertain operational meaning.

An Assessment of the Economic Impact of Brexit on the EU27 countries are dealt with by reference to WTO or other international standards. Several key service sector chapters, such as for financial services and telecommunications, are dealt with only at the level of vague endeavors to "cooperate". The SAA model is also not politically relevant for the UK because it is intended to be a stepping-stone towards full membership. In this case, once any country is not a member of EU again, the benefit of SAA is gone, then the UK needs to reconsider the trade with previously SAA benefited countries, even it is not a huge influence for UK.

3.3.3. Partnership and Cooperation Agreements (PCA)

The EU has many PCAs, especially with states of the former USSR, including Russia. These have extensive agendas for cooperation, but no legally binding preferential or free trade provisions. They rely on WTO tariff schedules. While many of these agreements are now two decades old, or have been replaced by the three DCFTAs, there

is an ongoing effort to revise and update them. For example the EU has made in 2015 a new ‘Enhanced Partnership and Cooperation Agreement’ with Kazakhstan in this category. It has the same comprehensive list of topics as in many other of the EU’s recent agreements including the DCFTA, but these are almost all limited to ‘best endeavors to cooperate’, with no binding commitments beyond references to WTO rules. This means that the economic impact of this category of agreement may be limited to a soft improvement of the mutual business climate, possible encouraging direct investment, but they are otherwise in economic terms little more than the WTO model. Therefore the PCA model is not interesting for the UK. While, mentioned about "partnership", the EU has ‘strategic partnerships’ with countries of the world deemed to be most important for economic and/or political reasons, including the US, Canada, Mexico, China, Japan, Korea, India, Brazil, and South Africa. The main feature is the holding of regular annual or twice yearly summit meetings to discuss global as well as bilateral issues. Some are combined with FTAs (Canada, Mexico, Korea), with some FTAs are currently under negotiation (US, Japan, Brazil), but others are without preferential trade arrangements in the foreseeable future (China).

The EU has had an informal strategic partnership with Russia, with twice-yearly summit meetings, but these are suspended given the sanctions policy triggered by the Ukraine crisis. The term ‘strategic partnership’ is to be compared with the ‘association agreement’ as representing the political framing of the relationship with the EU. The strategic partnership has connotations of top-level global affairs, whereas the association agreement is shared with the EU’s smaller neighbors. For this reason it is not surprising that the UK Prime Minister says she is looking for a ‘strategic partnership’ in discussing the UK’s possible future relationship with the EU, which she seems to want to combine with a CFTA, to which I mentioned above.

3.3.4. Free Trade Agreement

A free-trade area is the region encompassing a trade bloc whose member countries

have signed a free-trade agreement (FTA). Such agreements involve cooperation between at least two countries to reduce trade barriers like import quotas and tariffs and to increase trade of goods and services with each other. If people are also free to move between the countries, in addition to a free-trade agreement, it would also be considered an open border. It can be considered the second stage of economic integration. In this case, if UK and EU make the FTA for future development, here are the FTA issues checklist focusing on 5 different areas for no-deal Brexit to keep Britain trading. Here are some examples.

First, the customs system, its big enough to cope with the 255 million additional declarations that will need to be made each year, including fast-track arrangements for approved traders, pre-clearance of goods before a journey begins and post-payment of duties to avoid detention in ports.

Then, learning support for the 185,000 UK businesses that currently trade solely with the EU and will need to learn how to do customs declarations for the first time. And the equally frictionless arrangements by other EU countries exports are their imports, so it's not just a question of getting the goods out of the UK, they will need to clear EU Customs as well. Avoid vehicle checks at "roll on, roll off (ro-ro)" ports at all costs – an additional two minutes in clearance times at Dover will create a motorway queue 17 miles long, and delays in the days following the UK's departure from the EU could be significantly longer than this at peak times.

Last but not least, the no-cliff edge. Exporters and importers will need time to learn what they have to do under the new trading regime, as well as changing their procedures and instructing their staff. As James Hookham, FTA's Deputy Chief Executive says, so far these businesses have no details of what is expected of them beyond the broad statements in yesterday's White Paper: "Business cannot be expected to sort it all out at the last minute. It is not just about the Government being ready."

Due to the discerption and the fact we know, according the OECD's prediction

and the calculation, once UK make the FTA rules with EU, the total export is less than 6.4% comparing with today and decreasing 3.1% for EU's export, meanwhile decrease the 6.3% import from EU. Several studies consider this scenario, and model trade based on continued access to EU markets but with the additional costs of customs checks, and potential changes to the tariff the UK would apply to imports.

One difference in assumptions is whether the UK is able to replicate the EU's existing free trade deals. HMT assumes not, while NIESR, Open Europe, Oxford Economics and PwC/CBI assume this happens immediately. Unfortunately, none of the studies flexes this assumption in its sensitivity analysis, so we cannot be sure how important it is in terms of describing the reduction in trade. However, the overall similarities in the model results for this option suggest it is not a dominant factor.

There is virtually no forward-looking analysis of the effect of potential trade deals with countries that would be the most important economic powers in the coming decades. Open Europe cites Ciuriak et al. (2015), who suggest in a 'back-of-the-envelope' calculation that 'an Australia-like run of FTAs with the major East Asian economies (China, Japan, India, and the Association of Southeast Asian Nations [ASEAN]) should generate something on the order of a net of 0.6% of GDP for the UK'. Still, this estimate appears to be on current economy sizes and would, in any case, only arise as a benefit in this analysis if the EU failed to reach a similar agreement.

In summary, within this option, the studies that report trade impacts broadly agree on the level of reduced trade at around 15% (see Annex 2). Most suggest direct negative impacts on GDP through reduced trade of between 1 and 2% and Ciuriak et al. (2015), whose analysis underpins Open Europe's work, suggest that the direct trade impact is also –1%. Despite some differences in assumptions over how quickly or ably the UK can strike further trade deals, these analyses reinforce the conclusion earlier that the loss of EU trade is likely to dominate the overall trade impact.

3.4. The EU’s response

What the EU27 want is Brexit red lines from the other side of the table. The British government’s key Brexit red lines – controlling EU immigration, defend the unity of the EU, maintain the link between the single market and free movement and keep good trade links with the UK. The EU mainly focus on those four parts to discuss the all details those 2 years for "devoice".

According to the report recently published, the European Union announced unilaterally take off the draft agreement 118 pages, six parts, covering the Northern Ireland and the Irish border, the transitional arrangements, focus issues, such as in the European Union citizens' rights.

By releasing the draft, the EU showed Britain its tough stance in the Brexit negotiations. Expressing the draft, after Britain to take off the Northern Ireland should remain in the EU customs union, this means that the UK after taking off the Northern Ireland and the Irish won't appear "" hard boundaries, but belong to the main island of a country's territory in Northern Ireland and the UK will be separated by a" border trade ".

In addition, the draft request Britain officially take off in March 2019, after the transition period until December 31, 2020, the deadline of the EU's long-term budget plan at present, then the UK must be completely off the end of transition.

Take off the transition period, the draft regulations, the UK must comply with the eu laws and regulations, and the 27 member states in the transition period of the new law, at the same time, the British don't have the right to vote or decision-making, has no right to nominate or elected members of the EU institutions.

Draft regulations, Britain and the European Union to take off the agreement as soon as possible after disputes, including "breakup fee", in the European Union citizens' rights and other issues, the EU's highest court, the European court has jurisdiction over

the dispute.

On the eve of the release of the draft, the EU's chief negotiator, Barnier, "played down" the EU's tough stance, saying that the draft contained "nothing new" in the agreement reached between the two sides. After the draft was announced, Mr. Barnier again claimed that the EU's aim was to speed up the process of EU negotiations without provoking Britain.

So for now the attitude and measures are both tough and kind of strike. While what they expect is that their benefit is same and stable. Since the UK made the discussion, even EU hold the cold attitude to all speech from May, like The financial times saying, although the EU on May the prime minister's speech denial, but the British finally puts forward some concrete Suggestions, after all is a little progress, may let the trade talks began in the spring of this year.

4. Economic Impacts: Quantitative Estimates and Qualitative Assessments

There have been a number of model-based attempts to simulate the impact of Brexit, of which several estimate the impacts on both the UK and the EU27. Of these three are from official sources (OECD, UK Treasury, Netherlands Central Planning Bureau), Table 4 and from Figure 7 to Figure 8 for the general brief summary of different results, and Annexes 3-5 for explanation of the methodologies and more detailed information.

While these model simulations cannot capture all the likely economic effects of the Brexit, as explained further below, I do provide a cluster of findings that are close to a consensus view on the relative size of the impacts of economic and one more step explanation of public finance. Given that the changes of national income and key issues of fiscal policy, it is hardly surprising that the economic impacts and trade impact are quite an influence the future UK's development path.

4.1. Impact of changes in national income and public finance

The most obvious impact of a larger or smaller economy is, in cash terms, to increase or reduce the level of tax receipts. If the average tax rate on economic activity remained constant, then cash receipts would grow in line with the economy. So, for example, if tax receipts were 40% of national income and the economy grew by an additional 1%, we might expect tax receipts also to grow by an additional 1% and tax receipts as a share of national income to remain unchanged at 40%. However, this would ignore the fact that in progressive tax systems, such as the UK’s, the average tax rate rises with growth in the tax base. So, for example, if tax receipts were expected to be 40% of national income and the economy grew by an additional 1%, we would expect tax receipts to grow by more than 1% and tax receipts as a share of national income to edge above 40%. Conversely, if the economy grew by less than expected, then we would also anticipate tax receipts to be a smaller share of the resulting national income.

On the spending side, for the large parts of the public sector where cash budgets have been set, there is, by default, no impact of economic growth on spending in cash terms. This means that, for example, if public spending were forecast to be 40% of national income and the economy turned out to be 1% smaller than expected, then (if the forecast for public spending in cash terms proved correct) this would lead to public spending as a share of national income rising to 40.4% of national income (as 40/0.99 = 40.4). There is an additional impact on public spending as spending on social security benefits, tax credits and debt interest would be greater in cash terms if the economy were smaller than expected. This would push spending up further as a share of national income. The scale of these effects in the UK has been estimated by the Office for Budget Responsibility (OBR), updating previous analysis done by HM Treasury, in order to assess the extent to which the ups-and-downs of the economic cycle flatter or depress headline measures of the public finances. A summary of the findings is presented in Table 4. This shows the impact on current receipts (that is, total tax and non-tax receipts flowing to the public sector), total managed expenditure (that is, total public spending) and public sector net borrowing (which is the difference between total managed expenditure and current receipts) of a 1% reduction in national income. All the estimates are measuring how these fiscal aggregates are affected in terms of their share of national income.

Illustrative impact on the public finances of a 1% reduction in national income (% of national income) Fiscal aggregate

	Year 1 effect	Additional year 2 effect	Total effect
Current receipts	–0.1	–0.1	–0.2
Total managed expenditure	+0.4	+0.1	+0.5
Public sector net borrowing	+0.5	+0.2	+0.7

Source: Helgadottir et al. (2012) and author's calculation

Table 4

4.2. Key issues and fiscal policy

Chapter 2 of this article described the direct impact not only on the public finances of the UK leaving the EU but also the sociality situations about the changes of UK's exit behavior. This set out one important scenario in which total public spending therefore public sector net borrowing, it would be around £8 billion a year, or 0.4% of GDP lower than before. This assumed that the UK did not make any financial contribution to the EU budget but did choose to fund all of the transfers and services in the UK that the EU currently finances.

Chapter 3 of the article described various estimates and models, including those produced by HM Treasury and from outside of government, of the impact on the size of the UK economy of the UK leaving the EU with different agreements if they choose. These estimates covered a wide range of possibilities. But if leaving the EU did as seems more likely than not increase uncertainty in the short term and, over the longer term, lead to a reduction in trade and foreign direct investment, then it would be reasonable to expect this to lead to the UK economy being smaller in future than it otherwise would have been. That is the prediction of the large majority of those who have modelled the likely effects.

This chapter takes account of both the direct improvement in the public finances that would result from lower EU contributions and the various estimates for the impact on the size of the UK economy of the UK leaving the EU and describes what effect these could be expected to have on the public finances. Section 4.3 focuses on the short term and, in particular, the period through 2019 to 2020, describing the size of any changes to tax or spending that might be necessary if borrowing were to be reduced by the end of this parliament as is currently planned. Section 4.4 turns to look at the longer term. However, Section 4.1 describes the mechanisms by which changes in the size of the economy feed into changes in the public finances and presents a sense of scale of how large these effects might be and how they compare with the potential £8 billion reduction in borrowing set out in Chapter 3. Section 3.3 provides a brief conclusion. So here I list

some key issues for the uncertainty and short-term impacts.

The prospect of the UK leaving the European Union is likely to have an economic effect both in advance of the referendum and, in the event of a vote for exit, in the period following it while the UK and the EU agree on the plans and terms for exit.

The UK economy is already seeing some of these effects with sterling volatility rising (NIESR, 2016). The Bank of England's May quarterly inflation report notes sterling is 9% below its November peak and concludes 'there is evidence to suggest that roughly half of that decline reflects perceived risks associated with the referendum'. Following an out vote, there would be an effect from uncertainty about the specifics of the UK trade and policy framework. In this section, I consider these impacts, which in general are anticipated to apply from now up to around 2020.

4.2.1. The exit process

After a vote to exit, the UK would notify the EU of its intention to withdraw – though not necessarily immediately – and the process is then governed by Article 50 of the Lisbon Treaty. The UK has a two-year window to negotiate a withdrawal agreement, although most commentators recognize that, given the time taken over most trade agreements, this could be extended. Free Trade Agreement negotiations typically take a number of years to agree, with OECD (2016) suggesting that at least three years (for example, US–Australia) are needed, with Switzerland–China and EU–Mexico both taking four years, EU–Canada taking over five years and EU–Switzerland taking 10 years.

The long time taking action could cause the fiscal policy's unbalance for such long economic circle. As we know, any economic influence could show it effective delayed somehow. So time is one of the key issues for the fiscal policy's make and carry on.

4.2.2. Uncertainty and its impact on the economy

There are several mechanisms by which this uncertainty affects current and near-term economic variables. Uncertainty is likely to lead to both companies and households delaying their investment or spending decisions. Sterling would lose value in light of anticipated or actual reductions in demand from investors for sterling-based assets. A reduction in demand for UK assets may also affect the government's borrowing costs if demand for gilts falls (which reduces the price or – in other words – pushes up the interest rate). This would in turn reduce the spending power of households as the cost of borrowing and the price of imported goods rise. Exports may see some benefit (notwithstanding any reduction in investment from increased uncertainty that occurs within export-orientated industries) if sterling is weaker, with a potential improvement in the UK's trade balance. The capital market always reflect on the uncertainty elements directly and quickly.

Brexit could create an extended period of uncertainty that damages confidence and the appetite for both domestic and inward investment in the rest of the EU. But perhaps the biggest risk is political contagion from the 'proof of concept' of leaving the EU, with Brexit encouraging disintegrative political forces elsewhere in Europe. Here are several mainly elements need to be consider somehow may influence the final answer about Brexit.

- A protracted renegotiation, followed by a vote to exit in a UK referendum and the negotiation of a withdrawal agreement under Article 50, leading to a radically redefined relationship between the UK and the EU, would dominate the attention of the European institutions and, for significant periods of time, political leaders in Europe, distracting them from other priorities.
- The uncertainty that would impact on the UK would also impact on the rest of the EU, even if not to the same extent. But with confidence low, and growth prospects weak, the effect may nonetheless be significant.
- Uncertainty over Brexit could have a particular impact on EU trade policy. It

would be much harder to conclude a deal on, for example, TTIP, if the US is unsure who the other party to the agreement will be. It may greatly complicate other important policy areas, such as financial services, which is overseen by a Commissioner who was nominated by the UK.

- Brexit may have broader political implications. The EU might be strengthened with the departure of a sometimes awkward member. But European leaders may also worry about political contagion –Brexit could liberate centrifugal forces in the EU, particularly if the UK leaves on favorable terms or succeeds outside the EU. This is arguably the biggest risk to the rest of the EU.
- This may mean the EU has an incentive to raise the cost of exit by refusing to negotiate a special deal for the UK, or by excluding the UK from parts of the single market. The latter, particularly if it is politically motivated, would raise the direct economic costs of Brexit for the EU and the associated uncertainty.

Above all, I could say it is a long-term progress with a lot of question waited to figure out the effective solution in a limit timeline. I will try to figure out some of them in a clear mathematic way later.

4.2.3. Trade impact

There are two key elements to the impacts on trade: first, how overall levels of trade will be affected and, second, what knock-on those changes will have on the economy. This subsection looks at how trade patterns might be affected, the different types of models used to assess changes, and the potential economic impact in each of the potential trade policy scenarios. It then considers whether trade impacts could also affect productivity levels.

In all of the options available outside of the EU, UK trade with the EU would face additional frictions in terms of tariffs, customs checks or potential inability43 to provide services in the EU single market. Even if the UK were able to strike a new As such, in the face of these additional costs, some trade would become unprofitable and overall trade

with the EU would be lower as a result. As around half of our current trade is with the EU (44% of exports, 53% of imports; see Table 3 earlier), this could affect a significant proportion of trade.

What about trade beyond the EU? If the UK is able to agree trade deals with non-EU countries, this could increase our trade with those countries. Trade deals tend to focus on tariff measures (for example, taxes on imports); harmonizing non-tariff measures (for example, product regulation) tends to take longer and involve aligning regulatory approaches (Open Europe, 2016). Tariffs have reduced significantly over recent decades, and non-tariff measures are increasingly seen as important to increased trade (CEP, 2016a). So, even as we look below at the potential to strike trade deals with other countries, we need to keep in mind that, unless the UK would share sovereignty with those non-EU countries (in a similar way to the EU), then the trade agreements would not provide equivalent access to those markets.

In terms of UK trade beyond the EU, it could be possible for the UK to strike better, or faster, trade deals than the EU could. The EU has a head start in that it already has deals with over 55 countries. The UK may be able to 'grandfather' these deals, i.e. quickly strike very similar deals. But this is not guaranteed. More generally, the UK would have less to offer countries in terms of access to its own market (the UK's economy is only around a sixth of the EU's), but granting access to the UK would be less of a threat to countries keen to protect their own industries. As a single country, the UK may also have less difficulty in reaching a deal.

It seems likely that, over time, the UK would, if they wanted, strike bilateral Free Trade Agreements with big countries (Canada and Australia have done so with the US). Switzerland has agreed a deal with China44 ahead of the EU. It is important to be clear that, despite the name, such 'free trade agreements' do not go as far as the full market integration offered by EU membership. New deals would likely cover a smaller proportion of trade than the EU and its current deals (HM Treasury (2016a) estimates the EU and its trade agreements cover 56% of UK exports and 63% of imports). It is

therefore likely that overall trade would still fall (see modelling estimates in Table 5). Still over, say, a 30-year horizon, the make-up of UK trade partners could change. For example, continued fast growth of China (the destination for 3.1% of exports in 2015 data are form Bank Of England 2016) could lead to a fivefold increase in its GDP by 2050.45 However, the key consideration in non-EU trade is not only whether non-EU economies would become more important economically, but whether EU membership or Brexit is likely to confer better access to those markets. Given the EU's head start, larger market but more diverse needs, this is difficult to predict.

So, overall on non-EU trade prospects, in the short term the UK would struggle to achieve similar access to that which it currently enjoys as part of the EU and its existing FTAs. In the long term, the situation is much harder to predict. In terms of a combined EU and non-EU trade picture, it therefore seems clear that non-EU trade deals would not compensate for the loss of EU trade in the short term and would, perhaps, be unlikely to do so even over a longer time horizon.

The third option (WTO) would mean UK exports effectively faced the 'most favored nation' tariffs agreed at the World Trade Organization. These are by definition higher than would be faced under trade agreements and would act as a friction or barrier to exports and reduce them from current levels. The UK could nevertheless choose what level of tariffs to apply to imports and the 'unilateral free trade' option would reduce these to zero and potentially eliminate border checks. This would reduce the costs of imports to both producers and consumers, and increased imports would apply competitive pressures to UK producers with a knock-on to productivity levels. We return to the economic impact of this later.

Modelling estimates of impact of Brexit on Trade and FDI

Organization	Scenario	Trade reduction (%)	FDI reduction	Notes

CEP	Dynamic EEA/FTA	-12.6	None	FDI effect captured in trade
	Static EEA	-8	None	Assessed separately
	Static WTO	-14.5	None	Assessed separately
HM Treasury	EEA	-9	-10	
	FTA	-14to-19	-15to-20	
	WTO	-17to-24	-18to-26	
OECD	WTO/FTA	-10to-20	-10to-45	
NIESR	EEA	-11to-16	-10	
	FTA	-13to-18	-17	
	WTO	-21to-29	-24	
	WTO+	-22	-24	

Source: NIESR (2016) summary of modelling results; CEP (2016a and 2016b).

Table5

Overall on trade patterns, any exit scenario is almost certain to reduce UK trade with our current biggest trade partner, the EU, and potentially with the (over 55) countries the EU has an existing trade deal with. Estimates available from the studies, as shown in Table 3.8, suggest overall trade would fall by between 8 and 29%. In scenarios where the UK could make its own non-EU trade deals, perhaps it could strike quicker or better deals than the EU, and non-EU trade could grow more quickly and eventually offset at least some of this decline. On balance, Brexit offers a chance of non-EU trade increasing more quickly in the long term, but the strong likelihood of an ongoing reduction in trade with the EU. Finally, 'unilateral free trade' would have some positive knock-ons to competitiveness and productivity through cheaper imports, but exports would face significant additional tariff and non-tariff measures.

In summary, it is likely the UK would see a material reduction in trade. These

changes would also reduce 'openness' of the UK's economy, in terms of trade as a proportion of GDP, at least into the medium term. Estimating how much trade would reduce, and what impact this would have on the economy, involves relatively sophisticated modelling, and we next consider the different approaches, before examining the economic impacts.

4.3. Scenarios for the short term inflection of public finance

This section turns to consider explicitly what some of the estimates surveyed in Chapter 3 of the possible impact of the UK leaving the EU on national income in the short term would mean for the UK's public finances. The estimates are calculated using the relationship between national income and the public finances described in detail in the previous section. Most of the estimates also assume that the direct impact of the UK leaving the EU would be to strengthen the public finances by £8 billion a year (as described in Chapter 2).

The exception to this is the scenarios modelled by the National Institute of Economic and Social Research (NIESR) where the UK joins the EEA on similar terms to Norway. Under this scenario, in the analysis that follows, it is assumed that the UK's net contribution to the EU would be reduced by half, or £4 billion, from £8 billion to £4 billion. As described in Section 2.2, Norway's net financial contribution to the EU appears to be lower than that of the UK, but it is difficult to predict what the UK would contribute were it to join the EEA: on a per-person basis, Norway's contribution is about three-quarters of the UK's, while on a share-of-national-income basis, it is about 40% of the UK's. So a reduction of 50% is, perhaps, not implausible.

The estimated impacts on borrowing in the short run for a number of studies are shown in Table 6. This includes all of the main estimates of the impact of the UK leaving the EU on the UK's GDP that have been produced in the last couple of years that we are aware of. The vast majority, for reasons explained in the previous chapter, show a negative effect on GDP.

The studies are ranked from the largest decline in national income at the top (6%, produced by Société Générale) to the largest increase in national income at the bottom (1.6%, produced by Economists for Brexit). The second column gives the percentage change in national income. The third column gives the estimated resulting change – usually increase – in public sector net borrowing as a share of national income, while the fourth expresses this in 2016–17 £ billion.66 The worst-case scenario from the studies included in Table 6 is for borrowing to be increased by 3.8% of national income, which is equivalent to £74 billion. At the other end of the table, the best-case scenario is for a much rosier situation: borrowing is reduced by 1.5% of national income, or £30 billion in today's terms.

To help give a better sense of the scale of these estimates, the final column of Table 6 presents the change in public sector net borrowing divided by the current number of households in the UK (27.0 million in 201567). This is not to say that should any tax rises and spending cuts be implemented, these would fall equally on all households. It is also the case that should the UK population turn out to be larger (or smaller), then this would lead to the resulting cost or gain per household being smaller (or larger). Despite these caveats, these figures are a reasonable way of giving a feel for how significant these changes in borrowing would be.

The worst-case scenario presented in Table 6 leads to borrowing in 2019–20 increasing by the equivalent of £2,750 per current UK household. So tax rises or spending cuts of this magnitude, on average, would need to be delivered if borrowing were to be returned to its current forecast path. At the other end of the spectrum, the rosiest scenario would lead to borrowing falling by £1,100 per current UK household. If correct, a combination of tax cuts and spending increases worth this much on average would be possible while leaving borrowing unchanged from that forecast by the OBR in the March 2016 Budget.

HM Treasury's short-term analysis (not contained in Table 5) is for a 'shock

scenario' where national income is reduced by 3.6% and a 'severe shock' scenario where it is reduced by 6.0%. It estimates that these shocks would be associated with a £24 billion and a £39 billion increase in public sector net borrowing in 2017–18, respectively. These are much smaller increases in public sector net borrowing than implied by the methodology used to construct Table 6 This is because the Treasury's shock involves much higher inflation, which it implicitly assumes leads to spending by Whitehall departments on the delivery and administration of public services being less generous in real terms. In other words, it has built a significant real cut to public spending into its numbers.

Short-run impact on public finance from difference scenarios for GDP and a reduction in the UK's net EU contribution.

	GDP changes (%)	Impact on borrowing (% of national income)	Impact on borrowing (2016-2017)
PwC/CBI	-4.25	+2.6	+50
Nomura	-4	+2.4	+46
CITI	-4	+2.4	+46
OECD	-3.3	+1.9	+37
NIESR			
-WTO pessimistic	-3.5	+2.0	+40
-WTO optimistic	-2.8	+`.5	+30
-FTA pessimistic	-2.5	+1.3	+26
-FTA optimistic	-2.2	+1.1	+22
-EEA pessimistic	-2.4	+1.5	+29
-EEA optimistic	-2.1	+1.3	+25
Deutsche Bank	-3	+1.7	+33
Morgan Stanley	-2	+1.0	+19
Credit Suisse	-1.5	+0.6	+12

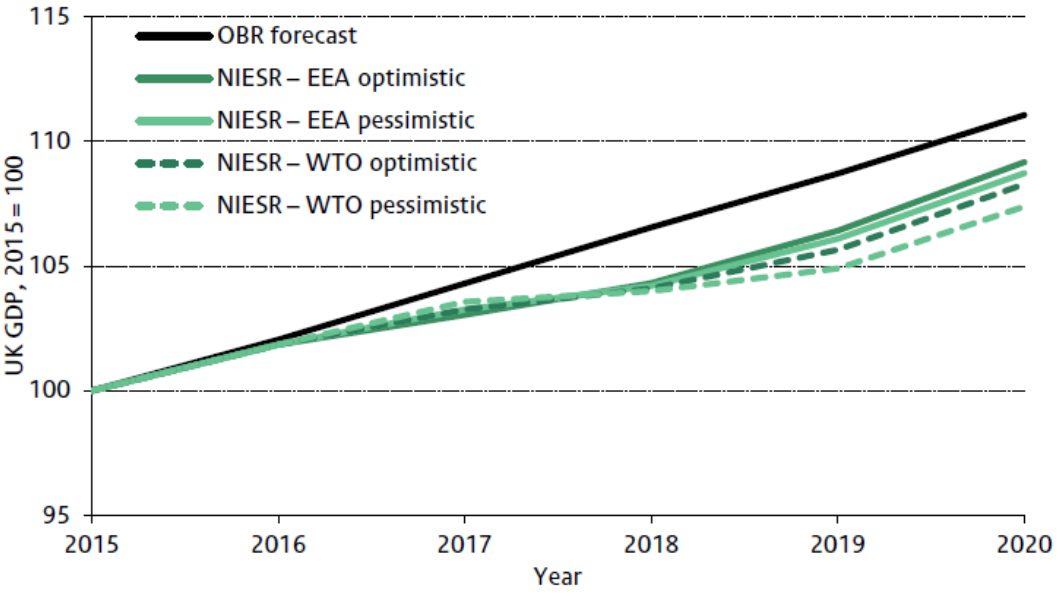
HSBC	-1.25	+0.5	+9
JP Morgan	-1	+0.3	+6
Mansfield	+0.1	-0.5	-9
Economists for Brexit	+1.6	-1.5	-30

Source: OECD

Table6

The estimates from NIESR are, of the studies included above, based on the most comprehensive economic modelling exercise. My judgement is that they data provide a credible view of the possible effects of the UK leaving the EU. The estimates also sit towards the middle of the range of all estimates. Furthermore, the most recent edition of the National Institute Economic Review includes NIESR's estimates of the impact of the UK leaving the EU for each year through to 2020. This allows a comparison of the path of GDP, public sector net borrowing and public sector net debt under each of the scenarios that NIESR models. Here, this is done by taking the OBR's latest forecast as the baseline and showing the impact of the deviations to GDP as suggested by the NIESR scenarios. For brevity, this is done for the forecasts under the two WTO and EEA scenarios, but not the two FTA scenarios, since these have impacts on GDP that lie in between the other scenarios. Figure 7 presents the resulting estimated path for GDP under each scenario. This shows that under the EEA scenarios (both optimistic and pessimistic), all of the short-term hit to GDP growth would be felt by the end of 2018. In contrast, under the pessimistic WTO scenario, growth continues to be noticeably weaker in 2019.

Comparison of the latest OBR forecast for GDP with how these might be affected by different NIESR scenarios for the impact of the UK leaving the EU

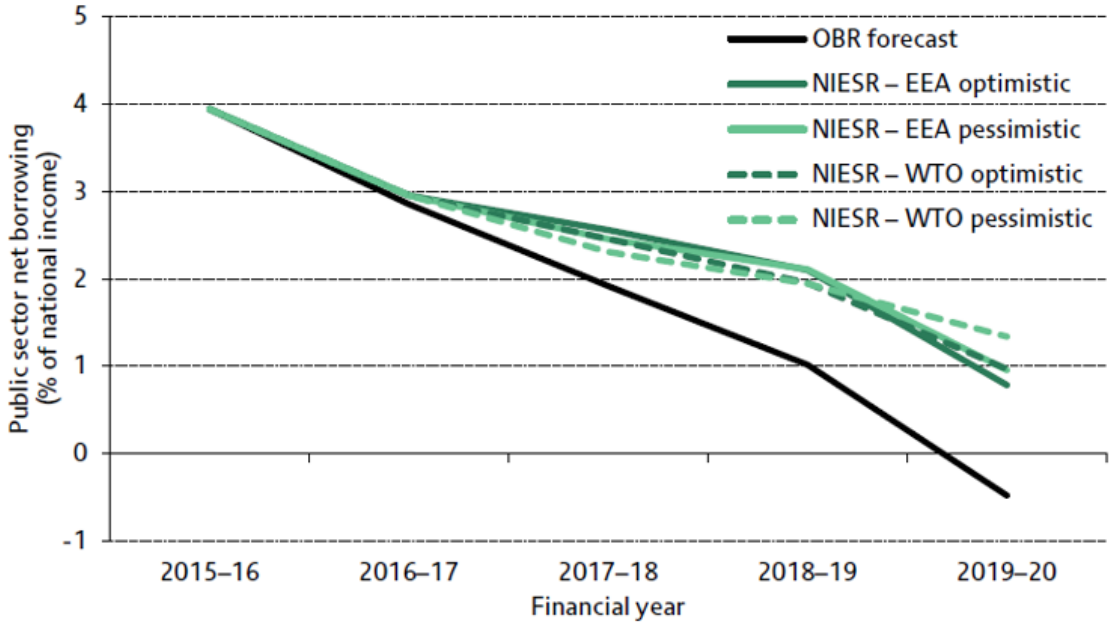


Source: OBR

Figure 7

The estimated paths for public sector net borrowing under each of these scenarios for GDP are presented in Figure 8. It is assumed that the UK's net financial contribution to the EU continues to the end of 2017–18, but thereafter it is reduced by one-half under the EEA scenarios and eliminated completely under the WTO scenarios. Under all the scenarios, the deficit as a share of national income is projected to fall each year. Under the two EEA scenarios, it is projected to fall by 1.8% of national income between2015–16 and 2018–19, while under the two WTO scenarios, it is projected to fall by 2.0% of national income. The slightly greater fall in the deficit under the WTO scenarios is despite weaker growth and is explained by the assumption that the UK's financial contribution to the EU is completely eliminated under this scenario by 2018–19, whereas under the EEA scenarios it is assumed to be running at half of its current level. But under all four scenarios where the UK leaves the EU, the reduction in the deficit is smaller than the 2.9% of national income decline between2015–16 and 2018–19 that is forecast by the OBR.

OBR forecast Public sector net borrowing and how those would be effect by NIESR scenarios for GDP



Source: OBR

Figure 8

In 2019–20 under all four scenarios for the UK leaving the EU, public sector net borrowing would still be positive. This implies that a further set of net tax rises and spending cuts would be required if a budget surplus were to be delivered before the planned date of the next UK general election, in line with the government's current ambition.

The scale of measures required to achieve a budget surplus by 2019–20 varies across the scenarios. But the most optimistic scenario set out in Figure 8 is for a deficit of 0.8% of national income in 2019–20, which would be a deficit of £17 billion in that year. This would be £28 billion greater than the £10.4 billion surplus forecast by the OBR for 2019–20, as shown in Table 7.

An additional fiscal tightening of 0.8% of national income (£15 billion in today's terms) – on top of what is already planned for this parliament – would be far from easy to deliver. For example, it is roughly the amount that would be saved if the government increased the cuts to day-to-day spending by central government on the delivery and

administration of public services planned for this parliament by 40% (from £12 billion to £17 billion), increased the size of the planned cuts to social security benefits and tax credits by 40% (from £12 billion to £17 billion) and also increased the basic and higher rates of income tax by 1p (which would raise an estimated £5½ billion). Even this would only achieve a forecast budget balance. To restore the 0.5% of national income surplus that the Chancellor is currently aiming for would require a further £10 billion of spending cuts and tax rises to be found.

Tightening required to return public finance to current path

	NIESR-WTO pessimistic	NIESR-WTO optimistic	NIESR-EEA pessimistic	NIESR-EEA optimistic
Deficit in 2019-20	£28bn	£21bn	£20bn	£17bn
Tightening to restore £10.4bn	£39bn	£31bn	£31bn	£27bn
Additional years of austerity at current pace to restore £10.4bn surplus	2.0years	1.4years	1.3years	1.1years

Source: Office for Budget Responsibility

Table 7

The government's fiscal mandate specifies that there should be an overall budget surplus in each year from 2019–20 onwards. But this rule is automatically suspended in periods of weak economic performance. Specifically, should growth over four consecutive quarters appear to fall below 1%, or should the OBR forecast that growth over four quarters will be less than 1%, then the rule is suspended. This suspension would occur under three of the NIESR scenarios set out in Figure 8 as they involve calendar-year GDP growth dropping below 1%. While under the other scenario – the EEA optimistic scenario – growth reaches a low of 1.2% in 2017, it is still possible the rule would be suspended, depending on the quarterly pattern of GDP growth.

Even if the fiscal mandate were not suspended, the type of trade-off set out above might well lead the Chancellor to decide to allow budget deficits to persist throughout this parliament and the rule to be broken. If a budget surplus is still deemed desirable, this could then be brought about through an extension of austerity further beyond 2019–20. Such a course of action would not be surprising: both of the government's other fiscal targets set for this parliament (the cap on forecast welfare spending and the requirement that debt should fall as a share of national income every year) have already been breached. And, should a scenario such as that suggested in Figure8, materialize, extending austerity into the next parliament may well be preferable to additional austerity in this parliament. (Another chancellor might, of course, simply decide to live with an ongoing deficit.)

Under the NIESR scenarios, growth in 2020 would actually be stronger if the UK left the EU than if it remained in it, as some of the costs of short-term uncertainty dissipate and some of the assumed longer-term costs from lower trade volumes and lower foreign direct investment (FDI) are not fully in place. This reduces the size of the necessary fiscal action if a surplus of 0.5% of national income is to be restored after 2019–20.

The UK's current fiscal consolidation, comprising tax increases, benefit cuts and cuts to spending on public services, announced since the March 2008 budget, in response to the financial crisis and associated recession, are estimated to total just over 10% of national income. This is taking place over the current decade, so entails a tightening of roughly 1% of national income per year. As set out in Table 7, under the most optimistic NIESR scenario for economic growth presented above, continuing austerity for a little more than one more year would be sufficient to restore a surplus of 0.5% of national income. This would mean the era of austerity coming to an end after 2021–22.71.Under the most pessimistic scenario, it would have to run for one more year beyond this.

4.4. Scenarios for the long term public finance impact

This section turns to look at the longer-term impact of the UK leaving the EU on the public finances. The exercise that is done here is simpler than that in the last section. For this, it is assumed that public spending continues to run at 37.0% of national income, which is the level forecast by the OBR for 2019–20. This is consistent with the sort of methodology used by the OBR in its long-term fiscal forecasts and is consistent with a view that, as the size of the economy changes over time, the size of the state tends to alter in proportion to the size of the economy. Therefore lower – or higher – levels of future national income naturally lead to smaller or greater sums being available to spend publicly, as well as private consumption also being reduced or increased.

As before, the direct impact of the UK leaving the EU is also taken into account: in most scenarios, it is again assumed that this would be to strengthen the public finances by £8 billion a year (as described in Chapter 2). The exception to this is the 'EEA' scenarios, where it is assumed that the UK joins the EEA on what might be considered similar terms to Norway's. As before, it is assumed that this leads to a one-half reduction in the UK's net financial contribution to the EU.

As was the case in the previous section, results are presented for all of the main modelled estimates of the impact of the UK leaving the EU on the UK's GDP that have been produced in the last couple of years that we are aware of. Again the vast majority, for reasons explained in the previous chapter, show a negative effect on GDP.

The estimated long-run impact on the public finances is shown in Table 8. The table shows the percentage change (usually a fall) in national income and the change (also usually a fall) in the amount available to spend publicly.

A 2% reduction in national income would, with public spending at 37.0% of national income, reduce public spending by £14 billion (in 2016–17 terms). If the UK's net financial contribution to the EU were completely eliminated, it would offset £8 billion

of this, leaving a £6 billion cut to public spending.

Estimated long-run impact on public finances from different scenarios for GDP and a reduction in the UK's net EU contribution

	GDP changes (%)	£bn change in spending (2016-2017)
CEP		
-dynamic EEA/FTA	-7.9	-49
-static WTO	-2.6	-11
-static EEA	-1.4	-5
HM Treasury		
-WTO	-7.5	-46
-FTA	-6.2	-37
-EEA	-3.8	-23
NIESR		
-WTO+	-7.8	-48
-WTO	-3.2	-15
-FTA	-2.1	-7
-EEA	-1.8	-9
OECD	-5.1	-29
PwC/CBI		
-WTO	-3.5	-17
-FTA	-1.2	-1
Economists for Brexit	+4.0	+37

Source: JP Morgan research note. & NIESR

Table 8

The majority of the estimates in Table 8 are for a larger reduction in national income than 2%. For example, the three scenarios produced by the Treasury imply reductions in national income of 7.5%, 6.2% and 3.8%. Under these scenarios, the calculations presented in Table 8 suggest that the public finances would be weakened by £46 billion, £37 billion and £23 billion, respectively. These estimates are very slightly above the Treasury's own estimates (of £45 billion, £36 billion and £20 billion, respectively72). The method employed is the same; the reason for the differences is that the Treasury takes receipts to be 37.4% of national income (the level forecast by the OBR for 2020–21) and differences in the assumed reduction in financial contributions to the EU.

A final thing to note about the Treasury's public finance estimates relates to how they have been described. In the foreword to the Treasury document (HM Treasury, 2016a), the Chancellor writes that 'Based on the Treasury's estimates, UK GDP would be 6.2% lower, families would be £4,300 worse off and tax receipts would face an annual £36 billion black hole'. The use of the word 'and' here is wrong. This is because the reduction in national income, of 6.2% or £4,300 per family, already encompasses the public finance impact: i.e. it covers not just the reduction in households' after-tax incomes but also the cut to public spending that would be required to leave borrowing unchanged. It is not necessarily inappropriate to describe the deterioration in the government's finances as making households worse off (since the government ought only to be doing public spending that benefits households), but it is not appropriate to suggest that this would be in addition to the £4,300 per family figure.

Using the estimates from NIESR (to be consistent with the short-run section and because they span most of the available estimates), the possible long-run reductions in national income range from 1.8% to 7.8%. The calculations presented in Table 7 suggest that this would reduce the amount available to be spent publicly by between £7 billion and £48 billion a year.

Finally, it is worth noting that none of these estimates explicitly accounts for

possible effects of leaving the EU on immigration. It seems most likely that immigration would be lower in this situation. Because immigrants, and especially those from the EU, are on average younger, better educated and more likely to be in work than the native population, numerous studies – for example, Dustmann and Frattini (2014) and Portes (2015) – have shown that immigration has a positive effect on the public finances. The Office for Budget Responsibility (2015) suggests that, in the long run, its low net immigration scenario would involve the public finances being more than 1% of national income weaker than in its high immigration scenario.

4.5. Conclusions for public finance

The direct impact of the UK leaving the EU would be to reduce – and possibly eliminate – the UK's net financial contribution to the EU. Eliminating this would reduce public spending, and therefore public sector net borrowing, by up to £8 billion a year. In the absence of any other effects on the UK then, if borrowing were to be left unchanged, this would allow net tax cuts or spending increases of up to £8 billion to be implemented.

But numerous studies have suggested that the UK economy would be affected by the UK leaving the EU. And in the majority of cases, the estimates suggest that the increase in uncertainty in the short term and the likely reduction in trade and foreign direct investment over the longer term would reduce national income. This would weaken the public finances.

In the near term, reduced economic growth would push up public spending as a share of national income – largely because fixed cash spending plans would represent a larger slice of a smaller national cake. And the progressivity of the UK tax system means that weaker growth would result not only in tax revenues growing less quickly in cash terms but in them representing a smaller share of (the reduced) national income. Therefore weaker growth would increase the size of the deficit relative to national income.

Of the studies considered, the short-run estimates from NIESR are based on the most comprehensive economic modelling exercise. Taking the most optimistic scenario for growth from NIESR's analysis, and using official estimates of how growth affects the public finances, suggests that in 2019–20 there would be a deficit 1.3% of national income or around £25 billion higher than currently planned. That is, there would be a deficit of 0.8% of national income rather than the surplus of 0.5% of national income that the OBR is currently forecasting. In NIESR's most pessimistic scenario, the deficit would be 1.8% of national income or around £40 billion higher than currently forecast.

Even on NIESR's most optimistic scenario, aiming for budget balance would require an additional fiscal tightening of 0.8% of national income, or £15 billion in today's terms. Achieving this – on top of what is already planned for this parliament – would not be easy: for example, even increasing the cuts to day-to-day spending by central government and the planned cuts to social security benefits by 40% would still require a £5 billion net tax rise. And this would still leave the public finances only just in balance, rather than with the 0.5% of national income (£10 billion in today's terms) surplus that the Chancellor is aiming for. Rather than delivering a budget surplus in this parliament, under this scenario it would, perhaps, be more likely to see the fiscal consolidation – and, with it, the date of the expected budget surplus – pushed back. This would require an additional one year of austerity on the most optimistic scenario and an additional two years on the most pessimistic one, and would add to debt. Another chancellor might, of course, simply decide to live with an ongoing deficit and higher debt.

Over the longer term, the scenarios modelled by NIESR suggest reductions in national income ranging from 1.8% to 7.8%. After accounting for reduced spending on financial contributions to the EU, these falls in national income would reduce the amount available to be spent publicly by between £7 billion and £48 billion a year.

5. Conclusions

The impact of Brexit on fiscal effect, the UK economy and wider British interests would be severe and felt across multiple channels. Both the path and the endpoint, in terms of the new relationship between the UK and the rest of the EU, would be uncertain, compounding the costs to the UK.

The direct impact on the rest of the EU would also be significant. The export, supply chain, investment and policy interests of many large corporates would be adversely affected, but perhaps the single biggest impact will be on the cost of raising finance in Europe which is likely to increase.

The mechanical effect of leaving the EU would be to strengthen the UK's public finances by around £8 billion a year as a direct result of ending UK's net contribution to the EU's budget. Future governments might well also decide to spend somewhat less than the current £4 billion or so of EU money that goes to support agriculture and, to a smaller extent, poorer regions such as Cornwall and the west of Wales. In that case, the public finances would be strengthened by somewhat more than £8 billion a year, though obviously at the expense of the farmers and regions whose subsidies would be cut.

This mechanical effect would be substantially smaller if, post Brexit, a future UK government were to decide to join the EEA in order to gain most, though not all, of the benefits conferred by membership of the single market. It is hard to know quite what the cost of that would be, but going by the Norwegian experience it might reduce the budgetary benefit of Brexit by about a half, or possibly more, as we would be required to make a contribution to the EU budget. It would not, however, take a substantial effect on future national income to offset this immediate £8 billion gain to the public finances. A fall in national income of just 0.6% relative to what it would otherwise have been would be enough. There is a wide range of estimates of both the short- and long-run effects of a Brexit on national income. The vast majority suggest a negative effect substantially in excess of 0.6% of national income.

In the short run, this negative effect is largely driven by an increase in uncertainty leading to a reduction in investment, lower consumer spending, falls in asset values and a hit to the exchange rate. In the longer run, more expensive trade with the EU – much UK's biggest trade partner – is generally modelled as the largest contributor to reduced national income, though a fall in foreign direct investment (FDI) could also be important. The scale of the long-run hit will depend on what trade arrangements we reach and the extent to which any reduced trade flows feed through into reduced productivity. Some reduction in regulation could have an offsetting effect, though most estimates are for this to be relatively small. In any case, such effects would depend on future political decisions, which are hard to forecast.

In the longer term, the way to think about the public finance effects of a lower growth trajectory is a bit different. Assuming we want to keep public spending at around the same proportion of national income into the future as it is currently planned to be in 2019–20, then one would expect public spending, on neutral assumptions, simply to follow the path of the economy. This, to borrow the language that Mr. Osborne used as shadow Chancellor prior to the financial crisis, would be one way of sharing the proceeds of growth between additional public spending and additional private consumption. If the economy, and private earnings and consumption, are bigger then in general we see that public spending is also bigger, and hence the quality of public services is greater. The reverse is true when the economy is smaller. Over the longer term, the scenarios modelled by NIESR suggest reductions in national income ranging from 1.8% to 7.8%. After accounting for reduced spending on financial contributions to the EU, these falls in national income would reduce the amount available to be spent publicly by between £7 billion and £48 billion a year.

Furthermore, Brexit would have a wider political impact on the EU, both by disrupting internal political dynamics and because of the risk of political contagion if the ‘proof of concept’ of leaving the EU encourages disintegrative forces in other member states. Europe would also lose esteem and influence around the world. Member states

would be affected in different ways and to different extents. This will most likely influence ways in which states are willing to engage and accommodate the UK during the pre-referendum negotiation. All member states would, however, feel the impact of Brexit, both politically and economically.

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List of Abbreviations

Brexit	British Exit from the European Union
EU	European Union
UK	United Kingdom
TTIP	Transatlantic Trade And Investment Partnership
FOB	free on board
CIF	Cost Insurance and Freight
FDI	Foreign Directly Investment
EU-28	European Union 28 Countries
OBR	Office for Budget Responsibility
BBC	British Broadcasting Corporation
EEA	The European Economic Area
WTO	World Trade Organization
DCFTA	The Deep and Comprehensive Free Trade Areas
NIESR	The National Institute of Economic and Social Research
OECD	The Organization for Economic Cooperation and Development
CBI	Confederation of British Industry
HM Treasury	Her Majesty's Treasury
MFN	Most Favored Nation
ASEAN	Association of Southeast Asian Nations

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- I take account of the VSB – Technical University of Ostrava (hereinafter as VSB-TUO) having the right to utilize the diploma thesis (under Section 35(3)) unprofitably and for own use;
- I agree that the diploma thesis shall be archived in the electronic form in VSB-TUO's Central Library and one copy shall be kept by the supervisor of the diploma thesis. I agree that the bibliographic information about the diploma thesis shall be published in VSB-TUO's information system;
- It was agreed that, in case of VSB-TUO's interest, I shall enter into a license agreement with VSB-TUO, granting the authorization to utilize the work in the scope of Section 12(4) of the Copyright Act;
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Ostrava dated 27.04.2018

Zhang Wen 张雯

Student's name and surname

List of Annexes

Annex 1 Investment rate assumptions

Investment as % GDP		
Country	Initial rate (2014)	From 2025
Australia	26.4%	22.4%
Canada	21.4%	16.4%
France	19.1%	15.1%
Germany	20.1%	18.1%
Italy	20.3%	18.3%
Japan	24.8%	19.8%
South Korea	30.9%	23.9%
Spain	23.9%	18.9%
United Kingdom	17.2%	16.0%
United State	20.6%	16.0%
Brazil	18.4%	18.4%
China	36.3%	20.3%
India	25.7%	23.7%
Indonesia	26.0%	23.0%
Mexcio	19.8%	19.8%
Russia	17.9%	17.9%
Turkey	21.2%	21.2%
Argentina	16.4%	17.4%
Bangladesh	21.2%	23.2%
Colombia	19.2%	19.2%
Egypt	15.5%	18.0%
Iran	20.5%	9.5%
Malaysia	28.2%	28.2%
Netherlands	20.6%	20.6%
Nigeria	5.8%	8.0%
Pakistan	16.2%	17.2%

Philippines	20.5%	25.5%
Poland	20.0%	20%
Saudi Arabia	20.5%	24.5%
South Africa	17.8%	23.8%
Thailand	29.8%	29.8%
Vietnam	20.1%	25.1%

Annex 2 Fiscal forecast overview

	Percentage change on a year earlier, unless otherwise stated						
	Outturn	Forecast					
	2016	2017	2018	2019	2020	2021	2022
Gross domestic product (GDP)	1.8	1.5	1.4	1.3	1.3	1.5	1.6
GDP per capita	1.0	0.9	0.8	0.7	0.7	0.9	1.0
GDP levels (2016=100)	100.0	101.5	103.0	104.3	105.7	107.2	108.9
Output gap	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	0.0
Household consumption	2.8	1.5	0.8	1.2	1.2	1.5	1.6
General government consumption	1.1	0.3	1.0	0.7	0.5	1.0	1.0
Business investment	-0.4	2.5	2.3	2.3	2.4	2.4	2.4
General government investment	1.5	2.4	1.4	2.3	6.2	1.1	0.9
Net trade1	-0.9	0.4	0.2	0.0	0.0	0.0	0.0
Inflation							
CPI	0.7	2.7	2.4	1.9	2.0	2.0	2.0
Labor Market							
Employment (millions)	31.7	32.1	32.3	32.4	32.5	32.6	32.7
Average earnings	2.8	2.3	2.3	2.3	2.6	3.0	3.1

LFS unemployment (rate, per cent)	4.9	4.4	4.3	4.4	4.6	4.6	4.6
	Changes since November forecast						
Output at constant market prices							
Gross domestic product	0.0	-0.5	-0.1	-0.4	-0.6	-0.5	-0.1
GDP per capita	-0.1	-0.4	-0.1	-0.4	-0.5	-0.4	-0.1
GDP levels (2016=100)	0.0	-0.5	-0.6	-1.0	-1.6	-2.1	0.0
Output gap	-0.2	-0.4	0.0	-0.1	-0.1	-0.1	0.0
Expenditure component of real GDP							
Household consumption	-0.2	-0.3	-0.1	-0.5	-0.5	-0.4	-0.2
General government consumption	0.2	-0.8	0.3	0.3	-0.4	-0.3	0.1
Business investment	1.1	2.5	-1.4	-1.9	-1.4	-1.2	0.1
General government investment	0.1	2.3	0.2	0.2	0.2	-2.7	0.3
Net trade1	-0.6	0.1	-0.1	0.0	0.0	0.1	0.0
Inflation							
CPI	0.0	0.3	0.0	-0.1	0.0	0.0	0.0
Labor Market							
Employment (millions)	0.0	0.2	0.2	0.2	0.2	0.2	0.0
Average earnings	0.6	-0.3	-0.4	-0.6	-0.8	-0.6	-0.1
LFS unemployment (%)	0.0	-0.5	-0.8	-0.7	-0.6	-0.5	0.0

Annex 3 The EU Single Market: Legal and Economic Background

This appendix gives fuller detail on how the EU Single Market was established and how it has evolved, and reviews the summaries of its economic impact.

Origins and legal basis of the Single Market

The concept of a 'common market' was central in the Treaty of Rome, which founded the European Economic Community (EEC) in 1957. Article 3 agreed:

(a) the elimination, as between Member States, of customs duties and of quantitative restrictions on the import and export of goods, and of all other measures having equivalent effect;

(b) the establishment of a common customs tariff and of a common commercial policy towards third countries;

(c) the abolition, as between Member States, of obstacles to freedom of movement for persons, services and capital.

In other words, the common market established a customs union and the free movement of goods, people, services and capital. These latter are now known as the Four Freedoms.

Evolution of the Single Market

The level of integration of the Single Market has evolved significantly over time. In the first decade of its operation, to 1968, the Customs Union was completed and duties between Member States abolished. However, this only eliminated formal trade restrictions. The Court of Justice of the European Union did rule on cases where Member-State rules restricted the Four Freedoms, but it was not until 1985 that the European Council received a White Paper on Completing the Internal Market (European Commission, 1985), which the Department for Business, Innovation and Skills (2013) suggests 'essentially set the agenda for the Single Market as we know it today'. This White Paper was a direct response to 'Eurosclerosis', the perceived stagnation of European economies, by planning a genuine single market for Europe. In particular, it argued for a more active strategy based on mutual recognition and on more legislative harmonisation; most of these measures were adopted by 1992.

Since the early 1990s, further efforts have been made to remove barriers to intra-EU trade. The Department for Business, Innovation and Skills (2013) summarises these as

follows:

The Maastricht Treaty (1993) added new EU competences in areas relevant to the Single Market such as consumer protection and trans-European networks; modified other areas such as the environment; gave Treaty standing to the 1988 legislation that largely abolished controls on capital and payments transfers between Member States; and created the concept of European citizenship, which would turn out to have major implications for freedom of movement within the EU.

Since 1996, there has been much more attention to the level of integration on services. In particular, as summarized by the Department for Business, Innovation and Skills (2013):

The Financial Services Action Plan in 1999 set out a range of proposed legislation aiming to make it easier to market financial services across the EU; in 2005 legislation was agreed, consolidating the system for mutual recognition of a range of professional qualifications across the EU; and in 2006 the Services Directive was agreed, consolidating jurisprudence and making it easier for unjustified barriers to services provision to be abolished.

In summary, the EU was founded with the aim of establishing a 'common market' with the 'Four Freedoms' of goods, services, persons and capital. Initially, efforts were focused on eliminating or reducing formal trade and customs barriers between members, but since the early 1990s, in response to sluggish economic performance, the EU has focused increasingly on 'completing the Single Market' with an emphasis on services, including financial services.

Valuing the impact of the Single Market

As part of the previous UK government's 'Balance of Competency' exercise in 2012, BIS reviewed a number of economic assessments of the Single Market. The full review is available in appendix 1 of Department for Business, Innovation and Skills (2013); here, I reproduce the summary table of these studies (Table 3.1).

Table 3.1. Summary of Single Market impact studie

Study	Headline results	Geographical coverage	Time period	Static Impacts	Dynamic Impacts	Other considerations
Cecchini (1998)	+4.25-6.5% GDP	EU 12 (no enlargement)	5-6 years	Included	Not included	Ex-ante
Baldwin (1989)	+0.3-0.9% long-term GDP growth	EU 12 (no enlargement)	Long-term	Included	Included	Ex-ante Provisional findings
Monti (1996)	+1.1-1.5% GDP; 300,000-900,000 jobs. in 1994	EU 12	Impact to 1994	Included	Limited (data availability)	Ex-post – limited data
Minford *et al* (2005)	-3% GDP to remaining in EU	EU15 (no enlargement)	Forward look (baseline = status quo)	Included	Not fully included	Forward assessment Broader than Single Market
Ilzkovitz *et al* (2007)	+2.2% GDP in 2006; + 2.75 million jobs	EU25	1992-2006	Included	Included (e.g. impact on TFP)	Ex-post
Boltho & Eichengreen (2008)	+5% GDP in 2008	EU25	Impact to date	Not explicit in numbers	Not explicit in numbers	Ex-post – greater focus on counterfactual Common Market and Single Market

Source: Department for Business, Innovation and Skills, 2013.

Clearly, these studies cover different time periods and take a variety of approaches to estimating the contribution of the Single Market. Some highlight changes to the level of economic output achieved by the Single Market, while one suggests it would cause the EU growth rate to increase.

Only one of the six studies – Minford et al. (2005) – finds a negative impact. In addition, it used inaccurate assumptions that exaggerated the negative impact and a modelling approach that ignored important features of international trade. A subsequent paper by CEP (2016b) has confirmed several fundamental problems with the approach.

Among the studies that find a positive impact, there is a wide range. The three ex-post assessments suggest an impact of 1.3% (to 1994; Monti (1996)), 2.2% (in 2006 using the period 1992–2006; Ilzkovitz et al. (2007)) and 5% (in 2008 using the full period since 1950; Boltho and Eichengreen (2008)). The ex-ante assessments suggest potentially higher figures, from 4.25% over the mid1990s (Cecchini, 1998), to an ongoing growth effect that, even over just a decade, would amount to 3–9% (Baldwin, 1989).

In summary, amongst these studies, there is a consensus that the Single Market has had a positive impact on EU economic output. A figure in the region of a 5% increase to EU GDP, relative to a situation where a Single Market was not pursued, would not seem

implausible. If that were the case, the Single Market's impact would mean an average EU citizen enjoys annual income and public service spending at a level 5% higher than otherwise. Still, I should exercise caution – several of the studies suffer from methodological issues that could bias the results upwards or downwards. In addition, the impact for individual member states could certainly differ from the EU average figure.

Whilst these studies provide relevant context, the estimates reviewed in Chapter 5 the conclusion are UK specific – they take into account the characteristics of the UK economy, including its openness to trade and higher-than-average contribution of services.

Annex 4 EU/EFTA Trade Deals

EU and EFTA trade deals and country coverage

EU only	EU & EFTA	EFTA only
Europe & Central Asia • Kosovo • Faroe Islands • San Marino • Andorra	• Turkey • Bosnia & Herzegovina • Serbia • Ukraine • Montenegro • Albania • Macedonia	• Georgia
Americas • Ecuador • Central American States • CARIFORUM States	• Mexico • Chile • Colombia • Peru • Some Central American States	• Canada
Middle East & Mediterranean • Algeria • Syria • Iraq	• Egypt • Lebanon • Jordan • Israel • Morocco • Tunisia • Palestinian Authority	• Gulf Cooperation Counc
South and East Asia	• South Korea	• Hong Kong • Singapore • Philippines

Africa & other • Cameroon • Papua New Guinea & Fiji • Madagascar, Mauritius, the Seychelles & Zimbabwe	• South Africa	• Southern African Customs Union
<u>EU only</u> 13 deals, 34 countries <u>EU total</u> 33 deals, 57 countries	Both-23 countries	<u>EFTA only</u> 7 deals, 15 countries <u>EFTA total</u> 28 deals, 38 countries

Annex 5 Modelling Results by Brexit Scenario

This table summarizes the quantitative economic assessments of Brexit according to the broad scenario considered. In the main text, I only look at those that consider all three scenarios. A full description of these assessments and their coverage is contained in Emmerson et al., 2016.

Scenario	Organisation	Estimate(% of GDP)	Range (% of GDP)
EEA	CEP(2016a)static	-1.3	N/A
	HM Treasury	-3.8	(-3.4 to -4.3)
	NIESR	-1.8	(-1.5 to -2.1)
FTA	CEP(2016a)dynamic	-7.9	(-6.3 to -9.5)
	HM Treasury	-6.2	(-4.6 to -7.8)
	NIESR	-2.1	(-1.9 to -2.3)
	PwC(2016a)	-1.2	N/A
	Oxford Economics	-2.0	(-0.1to -3.1)
	Open Europe	-0.1	(-0.8 to +0.6)
	OECD	-5.1	(-2.7 to -7.7)
WTO	CEP(2016a)static	-2.6	N/A
	HM Treasury	-7.5	(-5.4 to -9.5)
	NIESR	-3.2	(-2.7 to -3.7)
	NIESR	-7.8	N/A
	PwC(2016a)	-3.5	N/A
	Oxford Economics	-2.7	(-1.5 to -3.9)
	Open Europe	-2.2	N/A
	Economists for Brexit	+4.0	N/A

Annex 6 Key public finances data since 2010 in UK

Year	Total Receipts (PSCR)	Total Receipts (PSCR)	Public sector net borrowing (PSNB)	Public sector net debt (PSND)
Per cent of GDP				
2010-11	36.3	44.8	-8.6	71.4
2011-12	36.7	43.7	-7.1	75.1
2012-13	35.9	43.0	-7.1	78.6
2013-14	35.8	41.4	-5.5	80.5
2014-15	35.7	40.6	-4.9	82.9
2015-16	36.0	39.8	-3.8	82.6
2016-17	36.6	38.9	-2.3	85.3
2017-18	36.6	38.8	-2.2	85.6
2018-19	36.7	38.4	-1.8	85.5
2019-20	36.8	38.3	-1.6	85.1
2020-21	36.8	38.1	-1.3	82.1
2021-22	36.7	37.8	-1.1	78.3
2022-23	36.7	37.6	-0.9	77.9

Annex 7

Top 10, UK international trade in services (excluding travel, transport and banking) exports by product, 2016

Year	2013	2014	2015	2016
Financial	14909	13585	14896	18415
Services between related enterprises	11662	11407	11970	14668
Business management and management consulting services	6302	7279	7249	8921
Telecommunications	5978	7256	6783	8617
Computer Services	6696	7739	7673	8335
Engineering Services	7068	7031	7348	7314
Other trade in services	5603	5654	5449	7092
Advertising market research and public opinion polling services	4337	4971	5258	7085
Charges or payments for the use of copyrights	4390	4734	5223	6459
Provision of R&D services	5141	5086	5224	5749